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Water Resources Data for North Dakota

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT ND-78-1

WATER YEAR 1978

Prepared in cooperation with the State of North Dakota
and with other agencies

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CALENDAR FOR WATER YEAR 1978

1977

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Water resources data for the 1978 water year for North Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. This report contains discharge records for 153 gaging stations; stage only records for 16 gaging stations; stage and contents for 12 lakes and reservoirs; water quality for 76 gaging stations, 12 partial-record stations, 25 lakes, 97 wells, and water levels for 32 observation wells. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in North Dakota.

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CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY
Dr. H. William Menard, Director

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District Chief, Water Resources Division
U.S. Geological Survey
821 East Interstate Avenue
Bismarck, North Dakota 58501

1979

PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the State of North Dakota and with other agencies, by personnel of the North Dakota district of the Water Resources Division under the supervision of L. Grady Moore, District Chief, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region.

This report is one of a series issued State by State under the general direction of Philip Cohen, Acting Chief Hydrologist, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

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[*Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment*]

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WATER RESOURCES DATA FOR NORTH DAKOTA, 1978

INTRODUCTION

Water resources data for the 1978 water year for North Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. This report contains discharge records for 153 gaging stations; stage only records for 16 gaging stations; stage and contents for 12 lakes and reservoirs; water quality for 76 gaging stations, 12 partial-record stations, 25 lakes, 97 wells, and water levels for 32 observation wells. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in North Dakota.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report

ND-78-1". For archiving and general distribution, the reports for water years 1971-74 are also identified as water-data reports. These water-data reports are for sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (701) 783-4601.

COOPERATION

The U.S. Geological Survey and organizations of the State of North Dakota have had cooperative agreements for the systematic collection of streamflow records since 1903, for ground-water levels since 1937, and for water-quality records since 1946. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

North Dakota State Water Commission
  Vernon Fahy, Chief Engineer.

Oliver County Board of Commissioners
  John Weber, Chairman.

Assistance in the form of funds or services was given by other Federal agencies:

Corps of Engineers, U.S. Army
International Joint Commission, U.S. Department of State
Bureau of Land Management, U.S. Department of the Interior
Bureau of Reclamation, U.S. Department of the Interior
Fish and Wildlife Service, U.S. Department of the Interior
Surveillance and Analysis Division, U.S. Environmental Protection Agency
Soil Conservation Service, U.S. Department of Agriculture
Other Federal agencies of the U.S. Department of Interior for the development of the Misssouri River basin.

Certain stations are maintained under agreement with Canada and the records are obtained and compiled in a manner equally acceptable in both countries. Most of these stations are designated as "International gaging stations."

Some records have been collected and computed by contractors in accordance with U.S. Geological Survey specifications and under Geological Survey quality control.

ACKNOWLEDGMENT

North Dakota personnel who contributed significantly to the preparation of this report were: R. E. Harkness, chief, Hydrologic Records and Information Section; N. D. Haffield, D. B. Hanson, O. O. Holmen, R. A. Pewe, D. J. Ackerman and J. E. Wagner.

HYDROLOGIC CONDITIONS

Streamflow was generally much above normal in the southwest and near normal in the remainder of the State. However, spring runoff was excessive all across the State. Thousands of acres in the Red River Valley were inundated during March and April by water levels which, in places, were the highest of this century. Streamflow at the two index stations, the Cannonball River at Breien and the Red River of the North at Grand Forks, was 373 percent and 167 percent, respectively, of the 1941-70 median (see fig. 3).

The mean annual discharge for the Cannonball River at Breien was the second highest in 45 years of record.

Reservoirs recovered rapidly from drought conditions which prevailed during late 1976 and 1977. Contents of Lake Sakakawea increased 50 percent in a four month period during the year.

Ground-water levels were generally above normal in the west and below normal in the east throughout most of the year.

NOTICE

During water year 1978, revisions were made in the terminology used to define 143 of the water-quality parameter codes that have been used by the Geological Survey in its publication of water-quality data and in its WATSTORE data system. These revisions were made to achieve consistency in terminology and to conform to a joint USGS-EPA agreement on terminology. They do not represent a change in the way the codes have been used in the past or in the association of specific code numbers with identified analytical procedures.

Use of the new terminology began with data for the 1978 water year, and therefore, it first appears in this publication. Definitions on which the terminology is based are included in the "Definition of Terms" section of this report, and a table showing both old and new terminology is attached as an appendix to the report.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting inch-pound units to International System Units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5° C + 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Benthic organisms (invertebrates) are animals inhabiting the bottom of an aquatic environment. They include a number of different types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are frequently used as indicators of environmental quality because many have restricted mobility during their aquatic life phase, as well as a relatively long lifespan which allows for response to prevailing and changing water-quality conditions. Many benthic organisms inhabit specific types of environments, which if changed, results in changes in the composition of the benthic community.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate incubation membrane filter method.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir, lake, stream or aquifer. Contents herein is that of a reservoir and unless otherwise indicated, is computed on the basis of a level pool and does not include bank storage.

Continuing-record station is a specified site which meets one or all conditions as listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.
2. When water temperature records include observations taken once or more times daily.
3. When sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = - \sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at the specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multi-celled and are counted according to the number of contained cells per sample volume, usually milliliters (mL) or liters (L).

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024- 0.004	Sedimentation
Silt..........	.004 - .062	Sedimentation
Sand..........	.062 - 2.0	Sedimentation or sieve
Gravel........	2.0 -64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

pH indicates the degree of acidity or alkalinity of water and is expressed in terms of pH units. The pH value of a solution is the negative logarithm of the concentration of hydrogen ions, in moles per liter. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8.

Picocurie (PC, pCi) is one trillionth (1 x 10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7 x 10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells /mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage is the height of a water surface above an established datum plane; also gage height.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and polyethylene strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 μm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 μm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of suspended, total constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom..............	Animal
Phylum...............	Arthropoda
Class................	Insecta
Order................	Ephemeroptera
Family...............	Ephemeridae
Genus................	*Hexageria*
Species..............	*Hexagenia limbata*

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that automatically records water temperatures on paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the anlytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1978, is called the "1978 water year."

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

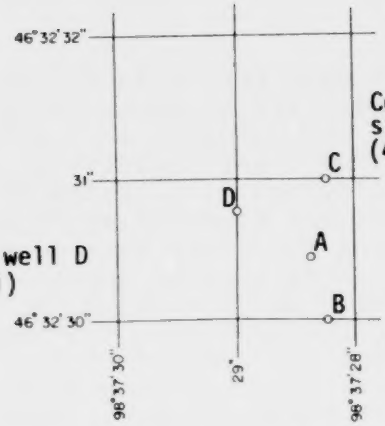
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 05051700, which appears just to the left of the station name, includes the 2-digit part number "05" plus the 6-digit downstream order number "051700".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1.



Coordinates for miscellaneous site C (463231098372801)

Coordinates for well D (463231098372901)

Coordinates for wells A (463230098372801) and B (463230098372802)

FIGURE 1--System for numbering wells and miscellaneous sites (latitude and longitude)

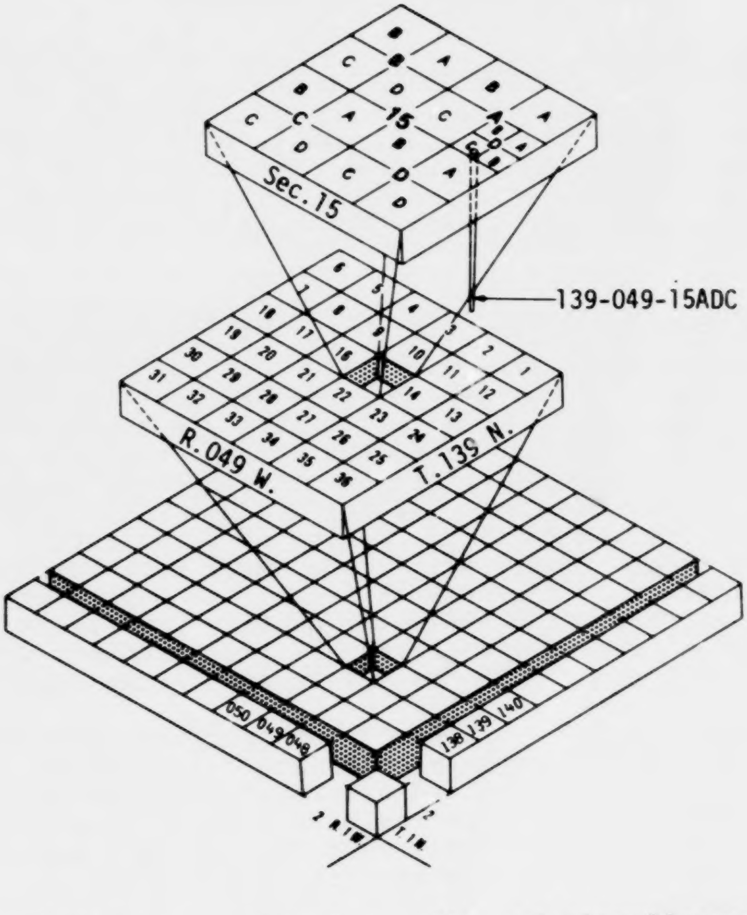


FIGURE 2--System for numbering wells and miscellaneous sites (township and range)

In order to compare data for wells in other publications, such as the county ground-water studies, the wells in this report are also numbered according to a system based on the location in the public land classification of the U.S. Bureau of Land Management. The system is illustrated in figure 2. The first numeral denotes the township north of a base line, the second numeral denotes the range west of the fifth principal meridian, and the third numeral denotes the section in which the well is located. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section, quarter-quarter section, and quarter-quarter-quarter section (10-acre or 4-hectare tract). For example, well 139-049-15ADC is in the SW¼SE¼NE¼ sec. 15, T. 139 N., R. 049 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes, by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 9.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations, information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stations that have 10 or more complete years of record, if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skelton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations and the second is a table of both low flow and high flow measurements. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of all discharge measurement sites in the State. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperature or sediment discharge) extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Parameter codes

In most of the column headings of this report the names of the constituents or properties for which data are given are followed by five-digit codes which appear in parentheses. These codes, called parameter codes, are identical to those introduced or approved by the U.S. Environmental Protection Agency and are widely used by federal and state agencies. The codes indicate, to one having a key, more precisely than the verbal column headings can the constituents or properties being reported. Data listed under a given code in this report should be comparable to those listed under the same code by other agencies.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 1 and 2.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office). Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2.1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $2.50.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4,Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $1.20.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elments in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin. B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

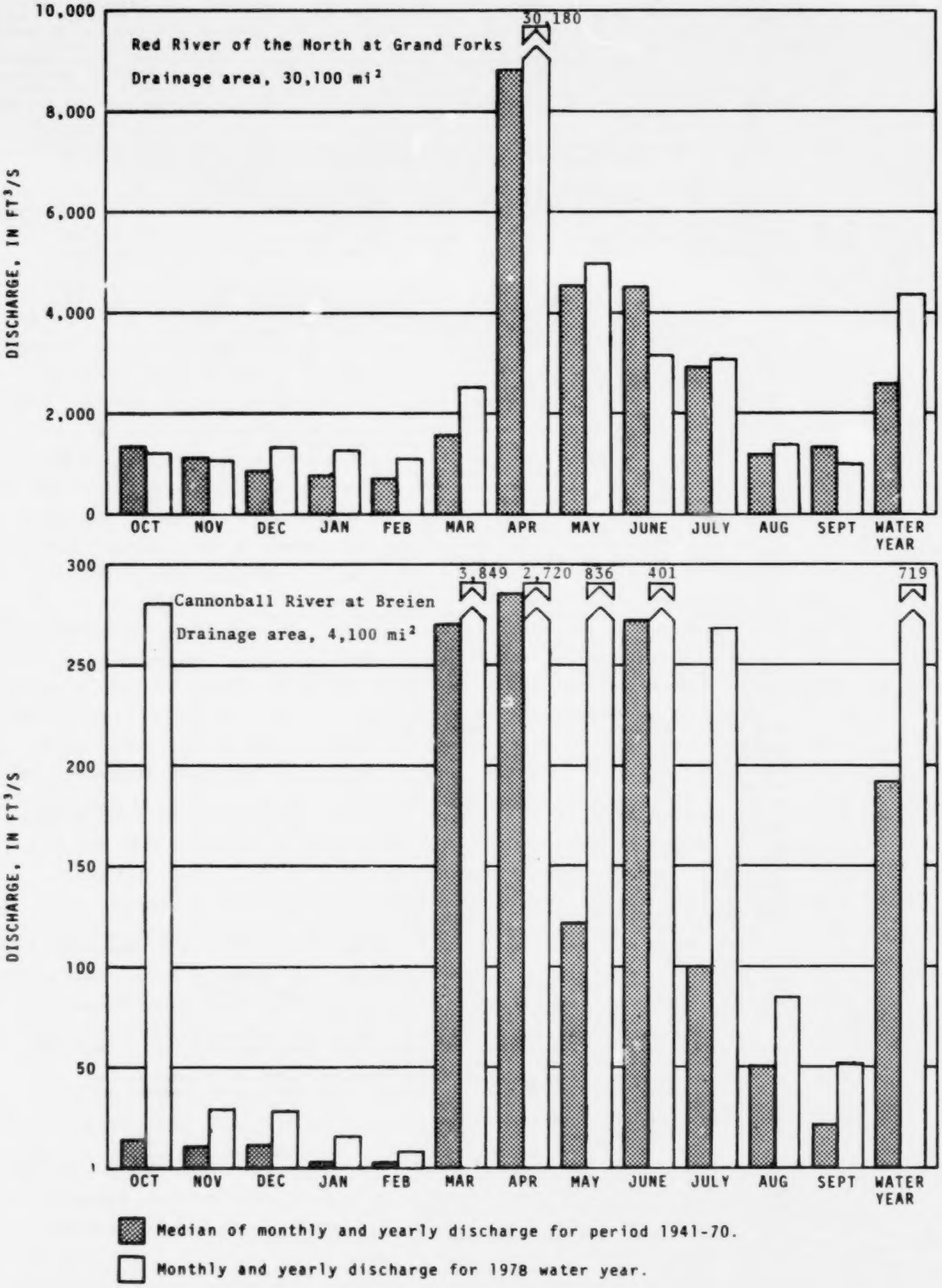


FIGURE 3.--Discharge during 1978 water year compared with median discharge for period 1941-70 for two representative gaging stations.

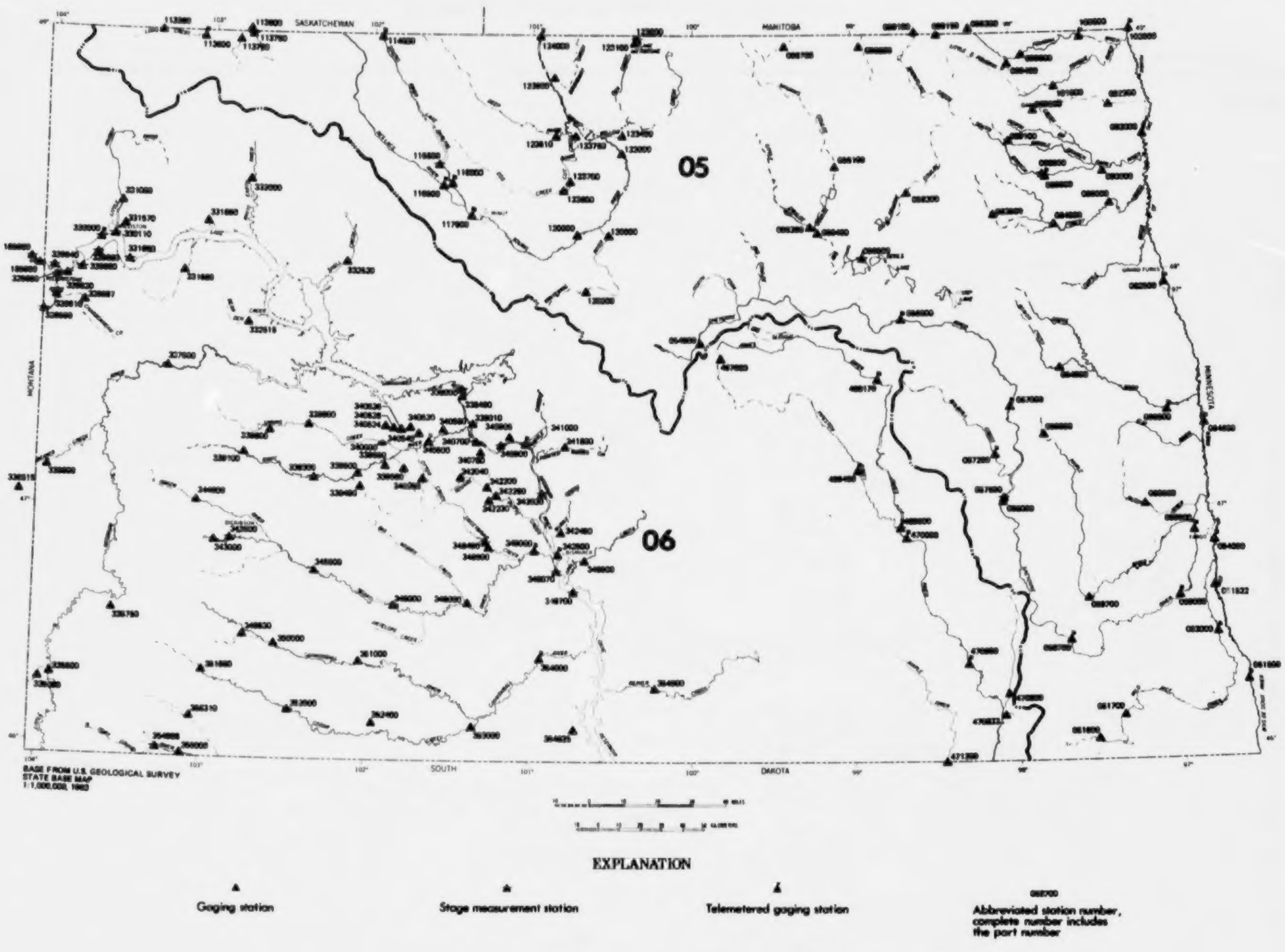

SASKATCHEWAN
MANITOBA
MINNESOTA
MONTANA
SOUTH
DAKOTA
05
06
104°
103°
102°
101°
100°
99°
98°
97°
49°
48°
47°
46°
BASE FROM U.S. GEOLOGICAL SURVEY
STATE BASE MAP
1:1,000,000, 1963
EXPLANATION
Gaging station
Stage measurement station
Telemetered gaging station
Abbreviated station number, complete number includes the part number

FIGURE 4-- Locations of lake and stream gaging stations.

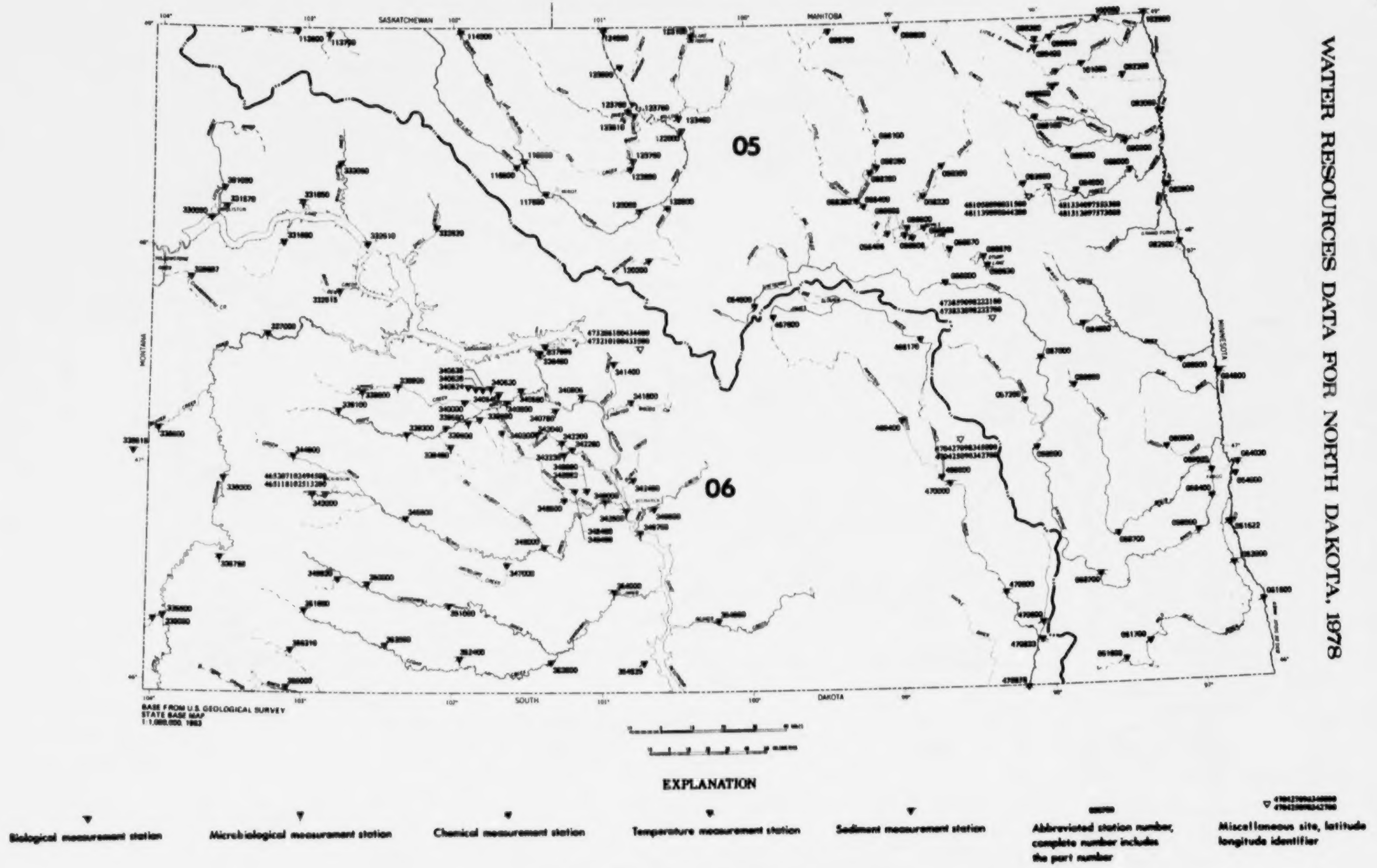
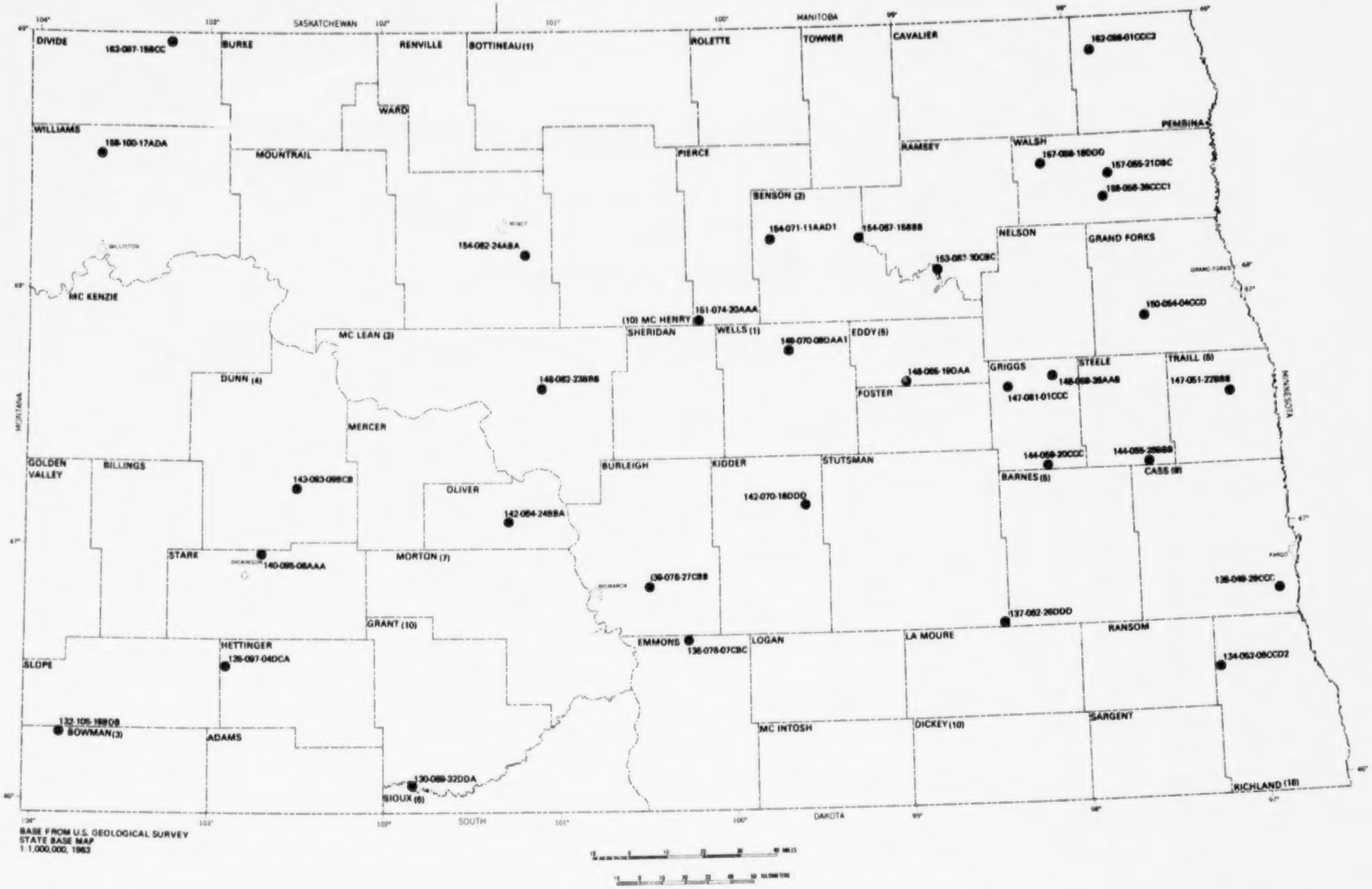

SASKATCHEWAN
MANITOBA
MINNESOTA
MONTANA
SOUTH
DAKOTA
05
06
104°
103°
102°
101°
100°
99°
97°
BASE FROM U.S. GEOLOGICAL SURVEY
STATE BASE MAP
1:1,000,000, 1963
EXPLANATION
Biological measurement station
Microbiological measurement station
Chemical measurement station
Temperature measurement station
Sediment measurement station
Abbreviated station number, complete number includes the part number
Miscellaneous site, latitude longitude identifier

FIGURE 5--Locations of water-quality stations.



EXPLANATION

● 130-089-32DDA
Ground-water observation wells,
number indicates well location

(3)
Number of wells in county for
which water-quality analyses
are given

FIGURE 6--Locations of ground-water observation wells.

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW¼SW¼ sec.27, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on left bank just downstream from Big Slough Outlet, 300 ft (91 m) downstream from White Rock Dam, 4 mi (6 km) south of White Rock, and 5 mi (8 km) northwest of Wheaton, MN.

DRAINAGE AREA.--1,160 mi^2 (3,000 km^2), approximately.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft (292.608 m) National Geodetic Vertical Datum of 1929, adjustment of 1912 (levels by Corps of Engineers). Prior to Jan. 14, 1943, nonrecording gage at same site at datum 0.11 ft (0.034 m) lower. Jan. 15, 1943, to Sept. 30, 1963, water-stage recorder at same site at datum 0.11 ft (0.034 m) lower.

REMARKS.--Records fair. Flow regulated by Lake Traverse-Bois de Sioux Flood Control and Water Conservation project, available capacity for flood control, 137,000 acre-ft (169 hm^3).

AVERAGE DISCHARGE.--37 years, 78.6 ft^3/s (2.226 m^3/s), 56,950 acre-ft/yr (70.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft^3/s (107 m^3/s), occurred during period Apr. 19-21, 1969, gage height, 15.07 ft (4.593 m), from floodmark; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 929 ft^3/s (26.3 m^3/s) Apr. 19, gage height, 11.59 ft (3.533 m), backwater from drainage ditch and beaver dam; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.62	.10	.00	.00	.00	50	738	697	474	205	67
2	.01	.62	.08	.00	.00	.00	60	736	689	516	212	67
3	.00	.70	.06	.00	.00	.00	80	735	685	492	214	67
4	.00	.72	.04	.00	.00	.00	171	732	683	475	215	67
5	.01	.62	.03	.00	.00	.00	264	737	679	475	219	67
6	.01	.58	.02	.00	.00	.00	255	731	651	517	222	67
7	.20	.58	.01	.00	.00	.00	230	725	668	665	182	68
8	.52	.97	.01	.00	.00	.00	254	737	659	699	103	46
9	.27	8.6	.00	.00	.00	.00	469	741	648	525	100	1.9
10	.25	6.0	.00	.00	.00	.01	625	726	646	315	97	1.4
11	.33	1.7	.00	.00	.00	.01	635	721	640	344	96	1.1
12	.19	.96	.00	.00	.00	.01	698	720	632	525	95	1.0
13	.11	.68	.00	.00	.00	.01	816	716	627	565	88	.91
14	.13	.58	.00	.00	.00	.01	807	714	619	559	87	.80
15	.15	.55	.00	.00	.00	.02	795	716	616	548	82	.63
16	.11	.70	.00	.00	.00	.02	783	716	612	553	78	.71
17	.25	.75	.00	.00	.00	.02	815	716	602	461	75	.68
18	.31	.70	.00	.00	.00	.02	912	712	588	361	74	.67
19	.23	.65	.00	.00	.00	.03	923	716	576	361	73	1.0
20	.27	.60	.00	.00	.00	.50	918	720	454	361	71	.94
21	.35	.50	.00	.00	.00	3.0	903	713	330	360	70	1.2
22	.31	.45	.00	.00	.00	4.0	894	713	326	360	71	2.6
23	.29	.40	.00	.00	.00	4.6	898	714	328	357	72	2.3
24	.29	.35	.00	.00	.00	5.0	905	714	328	354	71	1.2
25	.27	.30	.00	.00	.00	6.0	851	722	334	357	70	3.3
26	.29	.20	.00	.00	.00	7.0	763	719	336	285	69	2.5
27	.31	.15	.00	.00	.00	8.0	721	694	273	194	69	1.9
28	.27	.19	.00	.00	.00	10	732	697	187	191	69	4.4
29	.13	.13	.00	.00	---	12	736	700	192	196	68	2.1
30	.11	.11	.00	.00	---	20	738	696	296	198	68	2.1
31	.58	---	.00	.00	---	40	---	696	---	202	68	---
TOTAL	6.58	30.61	.35	.00	.00	120.26	18701	22283	15601	12885	3353	551.34
MEAN	.21	1.02	.011	.000	.000	3.88	623	719	520	416	108	18.4
MAX	.58	8.6	.10	.00	.00	40	923	741	697	699	222	68
MIN	.00	.11	.00	.00	.00	.00	50	694	187	191	68	.63
AC-FT	13	61	.7	.00	.00	239	37090	44200	30940	25560	6650	1090

WTR YR 1978 TOTAL 73532.14 MEAN 201 MAX 923 MIN .00 AC-FT 145900

05051500 RED RIVER OF THE NORTH AT WAHPETON, ND

LOCATION.--Lat 46°15'55", long 96°35'40", in NE¼ sec.8, T.132 N., R.47 W., Richland County, Hydrologic Unit 09020104, on left bank in Wahpeton, 800 ft (240 m) downstream from confluence of Bois de Sioux and Otter Tail Rivers, and at mile 548.6 (882.7 km).

DRAINAGE AREA.--4,010 mi² (10,390 km²), approximately.

PERIOD OF RECORD.--April 1942 to current year. Gage-height records collected in this vicinity since 1917 are contained in reports of the U.S. Weather Bureau.

GAGE.--Water-stage recorder and concrete and wooden dam. Datum of gage is 942.97 ft (287.417 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1943, U.S. Weather Bureau nonrecording gage 800 ft (240 m) upstream, converted to present datum. Aug. 6, 1943, to Oct. 27, 1950, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) National Geodetic Vertical Datum of 1929, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; numerous other controlled lakes and ponds, and several powerplants.

AVERAGE DISCHARGE.--35 years (1943-78), 528 ft³/s (14.95 m³/s), 382,500 acre-ft/yr (472 hm³/yr); median of yearly mean discharges, 480 ft³/s (13.6 m³/s), 348,000 acre-ft/yr (430 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft³/s (261 m³/s) Apr. 10, 1969, gage height, 16.34 ft (4.980 m); minimum daily, 1.7 ft³/s (0.048 m³/s) Aug. 28 to Sept. 5, 9, 10, 1976; minimum observed gage height, 0.63 ft (0.192 m) Aug. 29, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 17.0 ft (5.182 m), discharge, 10,500 ft³/s (297 m³/s) occurred in the spring of 1897 and has not been exceeded since.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,250 ft³/s (177 m³/s) Mar. 31; maximum gage height, 14.81 ft (4.514 m) Mar. 28, backwater from ice; minimum discharge, 6.3 ft³/s (0.18 m³/s) Sept. 16, gage height, 2.46 ft (0.750 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	161	364	418	360	330	5610	1800	1420	1480	622	81
2	245	161	347	415	360	372	5140	1780	1410	1680	614	70
3	236	167	327	415	360	379	4680	1760	1410	1690	550	59
4	229	194	300	415	360	402	4400	1790	1380	1550	530	57
5	224	209	300	415	360	464	4820	1820	1320	1400	526	57
6	220	212	300	415	360	484	4860	1840	1300	1280	522	56
7	260	212	310	425	360	481	4520	1870	1350	1740	514	56
8	299	218	320	437	360	468	3920	1900	1420	2970	494	56
9	307	228	310	367	355	448	3320	1890	1420	3460	426	56
10	302	147	307	469	344	459	3990	1890	1400	3030	378	45
11	335	105	350	480	338	438	4270	1850	1380	2940	354	25
12	328	155	380	500	324	445	3980	1830	1340	2410	334	21
13	325	377	400	500	316	459	3450	1800	1270	2020	294	18
14	322	430	400	470	308	449	3000	1770	1220	1740	279	18
15	293	425	400	450	294	440	2680	1760	1240	1560	302	9.6
16	259	382	400	440	283	434	2420	1740	1260	1460	295	22
17	235	366	400	430	281	437	2150	1720	1110	1360	259	126
18	230	330	400	420	281	457	1970	1700	988	1200	196	157
19	225	340	400	410	320	473	1890	1700	978	1040	113	208
20	217	450	390	391	330	480	1880	1680	1050	1010	83	239
21	210	480	340	320	330	600	1980	1660	1040	1080	75	203
22	201	470	260	320	330	750	2120	1650	953	1170	73	151
23	177	470	262	320	330	1000	2170	1590	920	1160	99	69
24	158	480	312	320	330	1530	2180	1490	1140	818	92	37
25	148	480	380	310	330	2000	2180	1520	1240	530	85	64
26	148	470	380	300	320	2600	2150	1520	1210	462	79	300
27	146	460	439	300	288	3560	2040	1500	1120	658	92	248
28	113	450	464	300	290	4800	1920	1480	995	714	88	222
29	110	440	469	340	---	4900	1850	1470	858	666	83	210
30	128	415	461	360	---	5430	1820	1450	1040	630	81	214
31	158	---	436	360	---	6190	---	1430	---	614	81	---
TOTAL	7051	9884	11308	12232	9202	42159	93360	52650	36182	45942	8613	3150.6
MEAN	227	329	365	395	329	1360	3112	1698	1206	1482	278	105
MAX	335	480	469	500	360	6190	5610	1900	1420	3460	622	300
MIN	110	105	260	300	281	330	1820	1430	858	462	73	9.6
AC-FT	13990	19600	22430	24260	18250	83620	185200	104400	71770	91130	17080	6250

CAL YR 1977 TOTAL 47335.4 MEAN 130 MAX 513 MIN 5.3 AC-FT 93890
WTR YR 1978 TOTAL 331733.6 MEAN 909 MAX 6190 MIN 9.6 AC-FT 658000

05051522 RED RIVER OF THE NORTH AT HICKSON, ND

LOCATION.--Lat 46°39'35", long 96°47'44", in SW¼ sec.19, T.137 N., R.48 W., Clay County, Minnesota, Hydrologic Unit 09020104, on right bank 60 ft (18 m) downstream from bridge on township road, and 1 mi (2 km) southeast of Hickson.

DRAINAGE AREA.--4,300 mi² (11,100 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 877.06 ft (267.3 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) National Geodetic Vertical Datum of 1929, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; numerous other controlled lakes and ponds; and several powerplants.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft³/s (261 m³/s) Apr. 2, 1978, gage height, 33.54 ft (10.223 m); no flow Oct. 26, 1976 to Jan. 9, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,200 ft³/s (261 m³/s) Apr. 2, gage height, 33.54 ft (10.223 m); minimum, 37 ft³/s (1.05 m³/s) Sept. 17, 18, 27, gage height, 9.06 ft (2.761 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	345	130	490	460	350	352	8920	1660	1410	899	571	108
2	327	156	450	460	360	340	8910	1630	1380	1130	571	108
3	305	162	410	460	360	340	8900	1610	1360	1370	569	108
4	280	169	390	430	360	400	8250	1590	1350	1490	540	101
5	264	173	350	425	360	400	7750	1580	1350	1460	507	93
6	250	199	320	426	360	400	7560	1600	1320	1320	496	89
7	254	220	300	427	360	450	7350	1610	1280	1210	492	81
8	262	226	305	444	360	480	6920	1650	1300	1370	485	78
9	297	242	310	446	360	460	6200	1740	1310	2240	478	71
10	356	184	320	431	350	455	5480	1780	1310	2850	451	74
11	366	105	320	384	350	450	4620	1780	1320	3220	409	78
12	349	133	310	450	350	450	4130	1780	1290	3280	380	78
13	348	148	330	485	341	450	3870	1750	1260	2970	364	68
14	339	151	380	465	337	450	3630	1680	1230	2410	344	53
15	326	321	400	459	335	450	3410	1640	1170	1870	321	43
16	319	411	400	440	330	440	2950	1630	1170	1510	325	41
17	294	431	400	434	320	435	2520	1620	1180	1320	329	37
18	266	418	400	416	300	430	2220	1620	1150	1220	314	43
19	241	395	400	403	295	450	1970	1610	1030	1110	276	148
20	229	350	400	417	290	460	1800	1600	940	994	220	220
21	227	380	396	407	290	490	1730	1590	964	924	152	224
22	217	340	383	408	290	535	1720	1590	964	928	116	264
23	211	340	338	381	310	550	1740	1590	956	977	164	232
24	207	430	314	356	350	580	1780	1580	940	1000	168	184
25	191	470	324	344	330	640	1810	1530	948	940	148	112
26	169	480	380	310	320	1080	1830	1510	1120	680	132	64
27	152	490	410	310	315	1210	1810	1500	1070	503	124	81
28	148	490	430	300	310	2280	1790	1490	1030	498	120	256
29	146	490	450	300	---	3350	1720	1480	944	615	128	252
30	124	490	460	300	---	4900	1670	1460	903	624	124	228
31	116	---	460	340	---	6900	---	1440	---	590	112	---
TOTAL	7925	9124	11730	12510	9343	31057	124960	49920	34949	43522	9934	3617
MEAN	256	304	378	404	334	1002	4165	1610	1165	1404	320	121
MAX	366	490	490	485	360	6900	8920	1780	1410	3280	571	264
MIN	116	105	300	300	290	340	1670	1440	903	498	112	37
AC-FT	15720	18100	23270	24810	18530	61600	247900	99020	69320	86330	19700	7170

CAL YR 1977 TOTAL 48080.40 MEAN 132 MAX 490 MIN .00 AC-FT 95370
WTR YR 1978 TOTAL 348591.00 MEAN 955 MAX 8920 MIN 37 AC-FT 691400

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,900 micromhos Jan. 27, 1977; minimum daily, 190 micromhos Mar. 28, 1978.
WATER TEMPERATURES: Maximum daily, 30°C July 23, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,100 micromhos Sept. 19, 20, 21; minimum daily, 190 micromhos Mar. 28.
WATER TEMPERATURES: Maximum daily, 28.5°C Sept. 5, 7; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
19...	0940	--	245	620	8.3	6.5	25	11.0	96	310	90
DEC											
01...	0955	--	491	590	7.8	.0	11	11.4	81	300	58
21...	1310	--	399	570	--	.0	--	--	--	--	--
22...	0945	--	380	580	7.8	.0	7	11.0	78	280	63
JAN											
25...	1120	--	341	620	7.7	.5	8	10.8	77	340	73
MAR											
01...	1525	--	363	535	7.6	.0	7	10.5	74	280	38
22...	1610	--	537	510	--	.0	--	--	--	--	--
24...	1300	1780	--	425	7.8	.0	9	10.3	73	210	30
APR											
01...	1240	--	8940	265	--	.5	--	--	--	--	--
03...	1510	--	8900	295	--	2.5	--	--	--	--	--
06...	1510	--	7560	310	8.2	5.5	--	--	--	--	--
11...	1050	--	4640	400	--	8.0	--	--	--	--	--
20...	1450	--	1790	380	--	6.5	--	--	--	--	--
27...	1055	--	1880	490	8.5	11.0	25	10.0	93	250	90
MAY											
25...	1425	--	1580	575	8.1	22.0	12	7.3	86	260	88
JUN											
29...	1035	--	979	675	8.1	25.5	15	5.5	68	300	130
JUL											
27...	1045	--	520	700	8.4	25.0	20	--	--	340	130
AUG											
31...	1425	--	111	650	8.3	23.0	32	7.6	--	420	200
SEP											
27...	1210	--	62	539	8.6	14.5	36	8.9	--	270	51

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT											
19...	62	38	21	13	.5	5.8	270	0	220	2.2	120
DEC											
01...	59	36	13	9	.3	5.2	290	0	240	7.4	63
21...	--	--	--	--	--	--	--	--	--	--	--
22...	53	37	15	10	.4	5.3	270	0	220	6.8	71
JAN											
25...	60	45	18	10	.4	5.7	320	0	260	10	90
MAR											
01...	51	38	12	8	.3	4.6	300	0	250	12	42
22...	--	--	--	--	--	--	--	--	--	--	--
24...	38	28	11	10	.3	5.1	220	6	180	5.6	37
APR											
27...	53	28	12	9	.3	5.6	190	1	160	1.0	99
MAY											
25...	53	31	16	12	.4	6.0	210	0	170	2.7	100
JUN											
29...	60	37	23	14	.6	7.5	210	0	170	2.7	140
JUL											
27...	69	41	23	13	.5	7.1	260	0	210	1.7	150
AUG											
31...	86	50	34	15	.7	9.0	270	0	220	2.2	240
SEP											
27...	53	34	15	11	.4	4.5	270	0	220	1.1	76

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
19...	11	.2	6.1	402	398	.55	266	.09	.04	.19
DEC										
01...	8.3	.1	11	339	340	.46	449	.26	.25	.14
21...	--	--	--	--	--	--	--	--	--	--
22...	9.3	.2	17	329	342	.45	338	.30	.31	.36
JAN										
25...	1.3	.2	20	415	399	.56	382	.30	.31	.55
MAR										
01...	8.5	.2	19	311	325	.42	305	.28	.32	.34
22...	--	--	--	--	--	--	--	--	--	--
24...	8.4	.1	13	249	252	.34	1200	.75	.65	.34
APR										
27...	6.0	.1	13	304	313	.41	1540	.24	.28	.05
MAY										
25...	7.8	.2	8.4	350	326	.48	1490	.02	.03	.01
JUN										
29...	14	.3	11	420	398	.57	1110	.50	.45	.00
JUL										
27...	9.2	.2	15	469	443	.64	658	.02	.01	.04
AUG										
31...	12	.2	15	624	580	.85	187	.04	.01	.03
SEP										
27...	7.9	.2	6.0	335	330	.46	56.1	.01	.01	.01

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO. TOTAL (MG/L AS P) (70507)	PHOSPHORUS, HYDROLYZABLE TOTAL (MG/L AS P) (00669)	PHOSPHORUS, HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)
OCT									
19...	1.3	1.5	1.6	7.0	.13	.05	.03	.07	.10
DEC									
01...	.65	.79	1.1	4.6	.10	.07	.03	.05	.08
22...	.64	1.0	1.3	5.8	.26	.26	.07	.05	.12
JAN									
25...	.75	1.3	1.6	7.1	.21	.14	.12	.01	.13
MAR									
01...	1.2	1.5	1.8	7.9	.13	.11	.07	.06	.13
24...	.65	.99	1.7	7.7	.25	.17	.12	.11	.23
APR									
06...	--	--	--	--	--	--	--	--	--
27...	1.2	1.2	1.4	6.4	.16	.11	.07	.12	.19
MAY									
25...	1.2	1.2	1.2	5.4	.20	.08	.05	.11	.16
JUN									
29...	1.4	1.4	1.9	8.4	.36	.14	.15	.22	.37
JUL									
27...	1.4	1.4	1.4	6.3	.22	.11	.11	.07	.18
AUG									
31...	1.5	1.5	1.5	6.8	.18	.09	.08	.04	.12
SEP									
27...	1.7	1.7	1.7	7.6	.14	.04	.05	.03	.08

DATE	PHOSPHORUS, ORGANIC TOTAL (MG/L AS P) (00670)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT									
19...	.00	10	2	0	100	1	0	0	4
DEC									
01...	.00	--	--	--	80	--	--	--	--
22...	.09	--	--	--	80	--	--	--	--
JAN									
25...	.00	--	--	--	90	--	--	--	--
MAR									
01...	.00	--	--	--	80	--	--	--	--
24...	.00	--	--	--	60	--	--	--	--
APR									
06...	--	0	5	0	--	2	0	1	15
27...	.00	--	--	--	70	--	--	--	--
MAY									
25...	.00	--	--	--	100	--	--	--	--
JUN									
29...	.00	--	--	--	130	--	--	--	--
JUL									
27...	.00	--	--	--	160	--	--	--	--
AUG									
31...	.06	--	--	--	190	--	--	--	--
SEP									
27...	.06	--	--	--	110	--	--	--	--

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
OCT								
19...	20	7	40	20	.0	1	2	0
APR								
06...	190	4	10	50	.1	3	2	0
27...	--	--	--	--	--	--	--	--

DATE	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS (UG/L)
OCT							
19...	200	1.0	10	8.0	.4	.00	1
DEC							
01...	--	--	--	11	.9	--	2
22...	--	--	--	9.3	1.2	--	3
JAN							
25...	--	--	--	9.4	1.2	--	4
MAR							
01...	--	--	--	8.9	.6	--	6
24...	--	--	--	7.0	--	--	1
APR							
06...	200	--	30	--	--	.00	--
27...	--	--	--	8.1	1.2	--	6
MAY							
25...	--	--	--	9.0	2.1	--	2
JUN							
29...	--	--	--	9.5	>2.5	--	1
JUL							
27...	--	--	--	16	2.0	--	3
AUG							
31...	--	--	--	11	2.0	--	2
SEP							
27...	--	--	--	9.5	--	--	2

DATE	PCB, TOTAL (UG/L) (39516)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
OCT												
19...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
JAN												
25...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
APR												
27...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
JUL												
27...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
OCT											
19...	.00	.00	.00	.00	.00	.00	.00	0	.00	.05	.00
JAN											
25...	.00	.00	.00	.00	.00	.00	.00	0	.00	.03	.00
APR											
27...	.00	.00	.00	.00	.00	.00	.00	0	.00	.03	.00
JUL											
27...	.00	.00	.00	.00	.00	.00	.00	0	.00	.06	.00

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
OCT							
19...	.00	43	28	--	--	--	--
DEC							
01...	--	16	21	--	--	--	--
22...	--	13	13	--	--	--	--
JAN							
25...	.00	14	13	--	--	--	--
MAR							
01...	--	17	17	--	--	--	--
24...	--	34	163	--	--	--	--
APR							
03...	--	114	2740	80	98	100	2
06...	--	162	3310	80	95	100	5
11...	--	122	1530	73	93	100	6
27...	.00	100	508	--	--	--	--
MAY							
25...	--	102	435	--	--	--	--
JUN							
29...	--	182	481	--	--	--	--
JUL							
27...	.00	88	124	--	--	--	--
AUG							
31...	--	56	17	--	--	--	--
SEP							
27...	--	58	9.7	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)
APR						
03...	8	36	84	99	99	100
06...	14	28	69	92	99	100
11...	16	30	51	82	98	100
27...	--	--	--	--	--	--

05051522 RED RIVER OF THE NORTH NEAR HICKSON, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	650	530	550	---	540	530	220	430	580	650	675	900
2	---	530	540	500	540	530	---	440	600	---	690	950
3	580	530	540	540	560	500	260	460	620	640	675	---
4	650	530	---	530	560	520	270	470	---	610	690	---
5	650	550	560	580	---	---	250	470	650	640	700	950
6	600	---	580	550	560	500	290	470	640	650	---	910
7	625	600	580	570	560	470	340	---	650	650	700	910
8	650	600	600	---	560	430	350	440	650	700	740	940
9	---	625	600	550	560	450	---	460	---	---	740	950
10	625	600	600	540	540	480	360	480	630	400	740	---
11	650	600	---	550	540	450	420	500	---	400	700	975
12	650	580	520	550	---	---	320	470	640	440	750	950
13	650	---	540	580	540	460	360	520	650	460	---	980
14	---	540	540	530	520	430	380	---	650	500	650	975
15	---	510	540	---	540	440	---	520	660	570	670	990
16	---	620	540	560	540	430	---	530	690	---	690	1000
17	---	500	---	530	550	440	360	560	690	690	700	---
18	---	500	---	560	540	480	420	540	---	700	700	1050
19	625	500	540	550	---	---	420	520	700	720	700	1100
20	600	---	540	600	520	440	440	500	750	750	---	1100
21	610	500	540	580	540	420	420	---	790	740	700	1100
22	600	500	560	---	540	460	440	520	780	600	700	970
23	---	500	570	600	500	420	---	530	780	---	670	660
24	580	520	590	600	500	410	480	560	730	660	680	---
25	570	520	---	625	520	320	440	520	---	670	740	560
26	550	520	600	600	---	---	410	500	650	675	740	500
27	550	---	560	600	520	---	480	500	650	735	---	500
28	560	500	540	580	520	190	450	---	650	850	700	625
29	600	520	520	---	---	220	500	520	625	950	850	580
30	---	540	540	580	---	200	---	530	660	---	900	650
31	550	---	540	640	---	230	---	580	---	700	950	---
MEAN	608	541	557	568	538	417	378	501	671	644	724	871

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	11.5	.5	---	.0	.0	2.0	14.0	18.5	25.5	22.5	26.5
2	---	10.5	.5	.0	.0	.0	---	14.0	18.0	---	21.5	27.0
3	12.5	10.0	.5	.0	.0	.0	3.5	15.0	18.0	26.0	21.0	---
4	12.0	11.0	---	.0	.0	.0	5.0	15.5	---	26.0	22.0	---
5	11.0	9.5	.0	.0	---	---	5.0	16.0	19.5	27.0	22.0	28.5
6	10.0	---	.0	.0	.0	.0	7.5	16.0	20.0	27.5	---	27.5
7	8.5	10.0	.0	.0	.0	.5	6.0	---	19.5	26.0	24.5	28.5
8	8.0	7.5	.0	---	.0	.5	7.0	14.0	20.5	24.5	24.5	26.0
9	---	2.5	.0	.0	.0	1.0	---	13.5	---	---	24.5	26.0
10	7.0	1.0	.0	.0	.0	1.0	6.0	14.5	21.0	22.0	25.0	---
11	7.0	2.0	---	.0	.0	1.0	7.0	15.0	---	21.5	25.0	24.5
12	8.0	1.5	.0	.0	---	---	5.5	14.5	21.0	22.0	26.5	21.0
13	9.5	---	.0	.0	.0	.0	6.0	15.5	21.5	23.0	---	19.5
14	8.5	1.0	.0	.0	.0	.0	7.5	---	23.0	24.0	26.0	19.0
15	9.0	3.0	.0	---	.0	.0	---	16.0	23.0	26.0	24.5	22.0
16	---	2.5	.0	.0	.0	.0	---	17.5	23.0	---	24.5	20.0
17	9.5	1.5	---	.0	.0	.0	9.0	18.5	22.0	28.0	24.0	---
18	8.5	1.5	---	.0	.0	1.5	8.5	19.5	---	28.0	23.0	16.5
19	9.5	.5	.0	.0	---	---	6.5	20.5	23.0	26.5	23.5	16.0
20	10.0	---	.0	.0	.0	1.5	7.0	19.0	21.5	25.5	---	16.0
21	9.0	.5	.0	.0	.0	1.5	7.0	---	21.5	25.0	24.5	15.5
22	7.5	.5	.0	---	.0	3.5	8.0	19.0	21.5	23.5	22.5	16.0
23	---	.5	.0	.0	1.0	.5	---	20.0	22.0	---	23.5	16.5
24	8.5	.5	.0	.0	.0	1.5	8.5	21.0	23.0	25.0	23.5	---
25	9.5	.5	---	.0	.0	4.0	9.5	22.0	---	26.5	26.5	16.5
26	9.5	.5	.0	.0	---	7.5	10.0	22.5	24.0	25.5	26.0	16.0
27	9.0	---	.0	.0	.0	7.0	12.0	22.0	24.5	25.0	---	16.0
28	9.5	.5	.0	.0	.0	4.0	13.0	---	25.5	26.0	24.0	15.0
29	8.5	.5	.0	---	---	2.5	14.0	21.0	26.5	23.0	24.0	14.5
30	---	.5	.0	.0	---	5.0	---	20.5	25.5	---	23.5	15.0
31	12.0	---	.0	.0	---	3.0	---	20.0	---	23.0	23.0	---
MEAN	9.5	3.5	.0	.0	.0	1.5	7.5	17.5	22.0	25.0	24.0	20.0

05051600 WILD RICE RIVER NEAR RUTLAND, ND

LOCATION.--Lat 46°01'20", long 97°30'40", in SE¼SE¼ sec.36, T.130 N., R.55 W., Sargent County, Hydrologic Unit 09020105, on right bank 1,000 ft (305 m) upstream from bridge on county highway, 2 mi (3 km) south of Rutland, and 10 mi (16 km) upstream from Lake Tewaukon.

DRAINAGE AREA.--546 mi² (1,410 km²), of which about 250 mi² (648 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,197.73 ft (365.068 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 11, 1960, nonrecording gage at same site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--19 years, 9.33 ft³/s (0.264 m³/s), 6,760 acre-ft/yr (8.34 hm³/yr); median of yearly mean discharges, 5.4 ft³/s (0.15 m³/s), 3,900 acre-ft/yr (4.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft³/s (36.0 m³/s) Apr. 8, 1969, gage height, 8.77 ft (2.673 m), backwater from ice; maximum gage height, 8.78 ft (2.676 m) Apr. 8, 1969, backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	1230	a*600	17.0	*7.64	2.329	Jul. 2	2000	480	13.6	6.17	1.881

No flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	322	21	4.3	78	3.6	.00
2	.00	.00	.00	.00	.00	.00	332	18	3.7	250	3.0	.00
3	.00	.00	.00	.00	.00	.00	312	15	3.8	442	2.0	.00
4	.00	.00	.00	.00	.00	.00	270	12	3.3	342	1.6	.00
5	.00	.00	.00	.00	.00	.00	225	9.3	2.8	238	1.3	.00
6	.00	.00	.00	.00	.00	.00	197	8.2	2.2	173	1.3	.00
7	.00	.00	.00	.00	.00	.00	193	7.6	2.2	140	1.3	.00
8	.00	.00	.00	.00	.00	.00	191	8.4	1.7	113	.99	.00
9	.00	.00	.00	.00	.00	.00	169	7.9	1.4	87	.89	.00
10	.00	.00	.00	.00	.00	.00	150	6.8	1.2	76	.80	.00
11	.00	.00	.00	.00	.00	.00	128	6.1	.92	70	.56	.00
12	.00	.00	.00	.00	.00	.00	99	6.1	.59	63	.39	.00
13	.00	.00	.00	.00	.00	.00	84	7.2	.39	50	.24	.00
14	.00	.00	.00	.00	.00	.00	74	7.3	.20	42	.13	.00
15	.00	.00	.00	.00	.00	.00	65	7.0	.26	37	.17	.00
16	.00	.00	.00	.00	.00	.00	59	6.5	3.3	30	.13	.00
17	.00	.00	.00	.00	.00	.00	52	6.5	1.8	26	.05	.00
18	.00	.00	.00	.00	.00	.00	49	5.8	1.0	22	.01	.00
19	.00	.00	.00	.00	.00	.00	45	5.2	.55	19	.00	.00
20	.00	.00	.00	.00	.00	.00	42	6.1	1.1	16	.00	.00
21	.00	.00	.00	.00	.00	.00	40	10	2.8	14	.00	.00
22	.00	.00	.00	.00	.00	.00	40	14	1.5	12	.00	.00
23	.00	.00	.00	.00	.00	.00	41	14	1.8	10	.00	.00
24	.00	.00	.00	.00	.00	.50	39	13	2.9	9.4	.00	.00
25	.00	.00	.00	.00	.00	1.0	38	13	9.1	9.4	.00	.00
26	.00	.00	.00	.00	.00	2.5	34	12	12	9.7	.00	.00
27	.00	.00	.00	.00	.00	20	31	11	10	10	.00	.00
28	.00	.00	.00	.00	.00	30	29	9.2	12	9.5	.00	.00
29	.00	.00	.00	.00	---	460	27	7.6	28	8.6	.00	.00
30	.00	.00	.00	.00	---	330	24	6.6	67	7.0	.00	.00
31	.00	---	.00	.00	---	300	---	5.3	---	4.8	.00	---
TOTAL	.00	.00	.00	.00	.00	1144.00	3401	293.7	183.81	2418.4	18.46	.00
MEAN	.000	.000	.000	.000	.000	36.9	113	9.47	6.13	78.0	.60	.000
MAX	.00	.00	.00	.00	.00	460	332	21	67	442	3.6	.00
MIN	.00	.00	.00	.00	.00	.00	24	5.2	.20	4.8	.00	.00
AC-FT	.00	.00	.00	.00	.00	2270	6750	583	365	4800	37	.00

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0

WTR YR 1978 TOTAL 7459.37 MEAN 20.4 MAX 460 MIN .00 AC-FT 14800

05051700 WILD RICE RIVER NEAR CAYUGA, ND

LOCATION.--Lat 46°07'30", long 97°21'40", on line between secs.29 and 30, T.131 N., R.53 W., Sargent County, Hydrologic Unit 09020105, on left bank 20 ft (6 m) downstream from county highway bridge, 1.2 mi (1.9 km) downstream from Shortfoot Creek, 2.5 mi (4.0 km) downstream from Crooked Creek, and 3.5 mi (5.6 km) northeast of Cayuga.

DRAINAGE AREA.--955 mi² (2,473 km²), of which about 390 mi² (1,010 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,095.64 ft (333.951 m) National Geodetic Vertical Datum of 1929, levels by Bureau of Reclamation. Prior to Oct. 9, 1957, nonrecording gage 0.8 mi (1.3 km) upstream at different datum.

REMARKS.--Records good. Some regulation by Fish and Wildlife Service reservoirs, of which Lake Tewaukon is the largest. Small diversions for irrigation.

AVERAGE DISCHARGE.--22 years, 18.5 ft³/s (0.524 m³/s), 13,400 acre-ft/yr (16.5 hm³/yr); median of yearly mean discharges 8.9 ft³/s (0.25 m³/s), 6,400 acre-ft/yr (7.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) Apr. 12, 1969, gage height, 9.32 ft (2.841 m); maximum gage height, 10.90 ft (3.322 m), Apr. 7, 1969, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 499 ft³/s (14.1 m³/s) Apr. 4, gage height, 6.24 ft (1.902 m); maximum gage height, 10.87 ft (3.313 m) Mar. 24, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	144	110	41	86	19	.60
2	.00	.00	.00	.00	.00	.00	124	101	72	89	18	.53
3	.00	.00	.00	.00	.00	.00	216	110	68	100	17	.36
4	.00	.00	.00	.00	.00	.00	462	93	48	127	17	.23
5	.00	.00	.00	.00	.00	.00	452	81	40	129	17	.15
6	.00	.00	.00	.00	.00	.00	445	81	34	131	16	.10
7	.00	.00	.00	.00	.00	.00	440	77	28	161	15	.06
8	.00	.00	.00	.00	.00	.00	402	81	26	231	13	.04
9	.00	.00	.00	.00	.00	.00	373	73	21	265	12	.02
10	.00	.00	.00	.00	.00	.00	334	69	18	285	9.8	.02
11	.00	.00	.00	.00	.00	.00	368	67	15	282	8.7	.04
12	.00	.00	.00	.00	.00	.00	361	67	14	268	7.8	.23
13	.00	.00	.00	.00	.00	.00	354	62	12	241	6.3	.31
14	.00	.00	.00	.00	.00	.00	324	56	11	212	5.0	.20
15	.00	.00	.00	.00	.00	.00	270	51	9.8	185	5.0	.17
16	.00	.00	.00	.00	.00	.00	267	49	15	163	4.5	2.8
17	.00	.00	.00	.00	.00	.00	64	59	15	136	4.3	.60
18	.00	.00	.00	.00	.00	.00	72	62	11	109	4.0	7.3
19	.00	.00	.00	.00	.00	.00	153	58	8.7	98	3.6	10
20	.00	.00	.00	.00	.00	.00	175	53	6.9	90	3.0	6.3
21	.00	.00	.00	.00	.00	.00	233	47	6.9	84	2.4	3.8
22	.00	.00	.00	.00	.00	.00	212	43	6.9	78	2.0	2.4
23	.00	.00	.00	.00	.00	.00	205	39	7.4	69	4.3	1.5
24	.00	.00	.00	.00	.00	5.0	180	39	7.4	62	4.0	.95
25	.00	.00	.00	.00	.00	50	196	43	8.7	56	3.0	.75
26	.00	.00	.00	.00	.00	464	228	57	36	53	2.2	.51
27	.00	.00	.00	.00	.00	415	197	54	102	46	1.8	.40
28	.00	.00	.00	.00	.00	134	175	48	107	43	1.6	.34
29	.00	.00	.00	.00	---	280	154	43	87	32	1.4	.29
30	.00	.00	.00	.00	---	262	131	40	82	26	1.0	.26
31	.00	---	.00	.00	---	202	---	36	---	22	.67	---
TOTAL	.00	.00	.00	.00	.00	1812.00	7711	1949	965.7	3959	230.37	41.26
MEAN	.000	.000	.000	.000	.000	58.5	257	62.9	32.2	128	7.43	1.38
MAX	.00	.00	.00	.00	.00	464	462	110	107	285	19	10
MIN	.00	.00	.00	.00	.00	.00	64	36	6.9	22	.67	.02
AC-FT	.00	.00	.00	.00	.00	3590	15290	3870	1920	7850	457	82

CAL YR 1977 TOTAL 3.33 MEAN .009 MAX 1.4 MIN .00 AC-FT 6
WTR YR 1978 TOTAL 16668.33 MEAN 45.7 MAX 464 MIN .00 AC-FT 33060

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND

LOCATION.--Lat 46°28'05", long 96°47'00", in NE¼NE¼ sec.36, T.135 N., R.49 W., Richland County, Hydrologic Unit 09020105, on right bank 420 ft (130 m) upstream from bridge on county highway, 0.75 mi (1.2 km) upstream from rubble masonry dam which serves as control, 3.2 mi (5 km) northwest of Abercrombie, and 7 mi (11 km) downstream from Antelope Creek.

DRAINAGE AREA.--2,080 mi² (5,390 km²), of which about 590 mi² (1,530 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1388: 1939, 1941(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder and masonry control. Datum of gage is 907.94 ft (276.740 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 7, 1939, nonrecording gage at site 420 ft (130 m) downstream at datum 5.0 ft (1.52 m) lower. Dec. 7, 1939, to Nov. 24, 1952, nonrecording gage at site 0.75 mi (1.2 km) downstream at present datum.

REMARKS.--Records good. Some regulation by Fish and Wildlife Service reservoirs, of which Lake Tawaukon is the largest. Some small diversions for irrigation.

AVERAGE DISCHARGE.--46 years, 73.2 ft³/s (2.073 m³/s), 53,030 acre-ft/yr (65.4 hm³/yr); median of yearly mean discharges, 31 ft³/s (0.88 m³/s), 22,500 acre-ft/yr (28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,540 ft³/s (270 m³/s) Apr. 11, 1969, gage height, 24.58 ft (7.492 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in spring of 1897 reached a stage of 27.5 ft (8.38 m) present site and datum, from floodmarks pointed out by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 30	0345	a*4,900	139	*20.03	6.105	Jul. 11	1100	392	11.1	3.58	1.091
Jul. 2	1015	440	12.5	3.78	1.152						

Minimum daily discharge, 2.3 ft³/s (0.065 m³/s) Jan. 23 to Mar. 1.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	8.3	7.7	7.0	2.3	2.3	4250	252	71	184	130	18
2	39	7.7	7.1	6.4	2.3	2.4	3200	240	67	430	115	19
3	32	8.3	6.5	5.8	2.3	2.4	2350	228	64	385	98	18
4	23	10	6.3	5.5	2.3	2.4	1910	218	60	338	86	16
5	15	12	5.8	5.2	2.3	2.4	1930	216	56	308	78	14
6	9.7	12	5.6	5.2	2.3	2.5	1990	211	51	262	73	13
7	7.7	10	5.2	5.0	2.3	2.5	1940	200	47	223	70	13
8	13	11	5.2	4.6	2.3	3.0	1870	195	42	200	65	12
9	49	20	4.9	4.6	2.3	3.0	1350	182	36	242	58	9.7
10	97	12	4.6	4.3	2.3	3.0	910	169	32	298	55	9.0
11	95	5.8	4.3	3.8	2.3	3.0	700	180	30	385	51	7.7
12	71	8.3	3.8	3.3	2.3	3.0	691	186	30	358	48	8.3
13	52	9.7	3.6	3.1	2.3	3.0	694	173	29	295	43	7.7
14	40	12	3.6	3.1	2.3	3.0	678	158	27	240	40	6.4
15	31	19	3.6	3.1	2.3	3.0	638	146	26	207	38	4.6
16	23	17	3.6	3.1	2.3	3.0	584	142	39	184	36	4.0
17	18	13	4.0	2.9	2.3	3.0	501	134	32	167	32	3.5
18	14	10	6.0	2.8	2.3	3.0	445	122	28	156	29	4.0
19	9.7	8.6	8.0	2.5	2.3	3.0	415	115	25	148	26	12
20	6.4	8.5	8.0	2.4	2.3	3.5	395	111	24	144	25	107
21	5.8	4.2	7.8	2.4	2.3	4.5	382	106	24	144	23	90
22	4.6	3.5	7.5	2.4	2.3	5.0	370	102	26	148	22	65
23	5.8	4.0	7.5	2.3	2.3	30	352	100	31	154	30	58
24	7.0	4.0	7.5	2.3	2.3	200	328	94	35	160	23	58
25	8.3	4.4	7.5	2.3	2.3	500	295	90	42	169	20	55
26	8.3	4.7	7.5	2.3	2.3	800	296	84	48	173	20	48
27	7.7	5.6	7.4	2.3	2.3	1300	300	79	44	173	20	40
28	7.7	6.5	7.3	2.3	2.3	2100	272	73	42	169	17	31
29	7.7	7.1	7.0	2.3	---	4400	260	74	40	165	15	27
30	7.0	7.7	7.0	2.3	---	4850	255	77	46	154	14	22
31	8.3	---	7.0	2.3	---	4800	---	75	---	142	16	---
TOTAL	761.7	274.9	188.4	109.2	64.4	19045.9	30551	4532	1194	6905	1416	800.9
MEAN	24.6	9.16	6.08	3.52	2.30	614	1018	146	39.8	223	45.7	26.7
MAX	97	20	8.0	7.0	2.3	4850	4250	252	71	430	130	107
MIN	4.6	3.5	3.6	2.3	2.3	2.3	255	73	24	142	14	3.5
AC-FT	1510	545	374	217	128	37780	60600	8990	2370	13700	2810	1590

CAL YR 1977 TOTAL 2784.34 MEAN 7.63 MAX 97 MIN .00 AC-FT 5520
WTR YR 1978 TOTAL 65843.40 MEAN 180 MAX 4850 MIN 2.3 AC-FT 130600

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1955-56, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,840 micromhos Mar. 7, 1972; minimum daily, 50 micromhos Mar. 24, 1978.
WATER TEMPERATURES: Maximum daily, 29.5°C Aug. 7, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,360 micromhos Sept. 6; minimum daily, 50 micromhos Mar. 24.
WATER TEMPERATURES: Maximum daily, 26.5°C Sept. 6; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT										
20...	1600	--	6.1	580	7.5	8.5	75	220	66	51
NOV										
15...	1700	--	19	690	7.5	2.5	30	280	98	67
DEC										
28...	1650	--	7.3	1280	7.7	.0	28	540	240	120
JAN										
18...	1100	--	2.8	1500	7.4	.0	65	700	260	160
FEB										
21...	1530	--	2.3	1850	7.0	.5	33	810	280	190
MAR										
22...	1045	--	4.9	1550	--	1.0	43	750	270	180
24...	1735	--	243	380	--	.5	--	--	--	--
26...	1155	--	2030	150	6.2	2.0	--	--	--	--
29...	1650	--	4670	125	--	.5	--	--	--	--
APR										
01...	1620	--	4140	215	--	.5	--	--	--	--
03...	1815	--	2220	250	--	4.0	--	--	--	--
07...	0940	1940	--	290	--	7.0	--	--	--	--
11...	1715	--	678	420	--	8.0	--	--	--	--
26...	1500	--	292	800	8.0	11.5	28	330	150	76
MAY										
24...	1445	--	91	1100	8.1	22.0	24	490	210	110
JUN										
22...	1545	--	29	1180	8.1	22.0	20	540	210	120
JUL										
17...	1340	--	165	810	7.9	26.0	50	350	100	80
AUG										
17...	1030	--	32	1000	8.0	23.0	38	460	120	100
SEP										
20...	1750	--	118	1180	--	14.5	--	--	--	--
27...	0815	41	--	739	8.1	14.0	35	300	140	70

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
20...	23	38	26	1.1	13	190	0	160	9.6
NOV									
15...	27	45	25	1.2	11	220	0	180	11
DEC									
28...	58	77	23	1.4	18	370	0	300	12
JAN									
18...	72	97	23	1.6	17	530	0	430	34
FEB									
21...	81	140	27	2.1	17	640	0	530	102
MAR									
22...	73	120	24	1.9	47	590	--	480	--
APR									
26...	35	38	19	.9	12	230	0	190	3.7
MAY									
24...	53	81	26	1.6	16	350	0	290	4.4
JUN									
22...	59	80	24	1.5	11	400	0	330	5.1
JUL									
17...	36	49	23	1.1	10	300	0	250	6.0
AUG									
17...	51	59	21	1.2	16	420	0	340	6.7
SEP									
20...	--	--	--	--	--	--	--	--	--
27...	31	45	24	1.1	11	200	0	160	2.5

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
OCT 20...	110	25	.2	22	394	377	.54	6.49	.30
NOV 15...	150	23	.2	22	455	454	.62	23.3	.04
DEC 28...	350	36	.2	29	905	871	1.23	17.8	.03
JAN 18...	380	46	.3	35	1100	1070	1.50	8.32	.03
FEB 21...	460	58	.4	43	1370	1310	1.86	8.51	.00
MAR 22...	430	59	.3	36	1220	1240	1.66	16.1	.21
APR 26...	200	16	.2	18	525	509	.71	414	.10
MAY 24...	310	27	.2	9.5	792	780	1.08	195	.01
JUN 22...	320	28	.3	17	866	833	1.18	67.8	.02
JUL 17...	180	14	.2	33	522	552	.71	233	.30
AUG 17...	220	20	.3	30	734	704	1.00	63.4	.01
SEP 20...	--	--	--	--	--	--	--	--	--
27...	210	19	.2	14	523	501	.71	57.9	.46

DATE	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT 20...	.51	--	--	--	130	--	--	--	--
NOV 15...	.25	--	--	--	150	--	--	--	--
DEC 28...	.47	--	--	--	210	--	--	--	--
JAN 18...	.68	--	--	--	260	--	--	--	--
FEB 21...	1.7	--	--	--	330	--	--	--	--
MAR 22...	1.6	--	--	--	320	--	--	--	--
28...	--	120	2	0	--	1	0	1	3
APR 26...	.13	--	--	--	150	--	--	--	--
MAY 24...	.16	--	--	--	240	--	--	--	--
JUN 22...	.27	--	--	--	290	--	--	--	--
JUL 17...	.50	--	--	--	250	--	--	--	--
AUG 17...	.47	--	--	--	280	--	--	--	--
SEP 27...	.15	--	--	--	200	--	--	--	--

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
MAR 28...	110	8	10	90	.0	2	3	6	120	30	.00

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM (70336)
OCT											
20...	31	.51	--	--	--	--	--	--	--	--	--
NOV											
15...	10	.51	--	--	--	--	--	--	--	--	--
DEC											
28...	9	.18	--	--	--	--	--	--	--	--	--
JAN											
18...	26	.20	--	--	--	--	--	--	--	--	--
FEB											
21...	74	.46	--	--	--	--	--	--	--	--	--
MAR											
22...	45	.60	--	--	--	--	--	--	--	--	--
28...	108	592	80	99	100	--	--	--	--	--	--
APR											
03...	72	432	78	96	100	--	--	--	--	--	--
07...	108	566	76	89	--	93	94	94	96	99	100
11...	94	172	--	--	--	--	--	--	--	--	--
26...	42	33	--	--	--	--	--	--	--	--	--
MAY											
24...	16	3.9	--	--	--	--	--	--	--	--	--
JUN											
22...	13	1.0	--	--	--	--	--	--	--	--	--
JUL											
17...	38	17	--	--	--	--	--	--	--	--	--
AUG											
17...	66	5.7	--	--	--	--	--	--	--	--	--
SEP											
20...	50	16	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT										
20...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	--	--	--	--	--	--	--	--
DEC										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
18...	--	--	--	--	--	--	--	--	--	--
FEB										
21...	--	--	--	--	--	--	--	--	--	--
MAR										
22...	--	--	--	--	--	--	--	--	--	--
28...	11	29	55	77	84	90	96	100	--	--
APR										
03...	10	19	28	42	61	73	80	88	100	--
07...	4	9	15	28	52	68	75	82	90	100
11...	2	6	16	27	30	38	51	77	90	100
26...	--	--	--	--	--	--	--	--	--	--
MAY										
24...	--	--	--	--	--	--	--	--	--	--
JUN										
22...	--	--	--	--	--	--	--	--	--	--
JUL										
17...	--	--	--	--	--	--	--	--	--	--
AUG										
17...	--	--	--	--	--	--	--	--	--	--
SEP										
20...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

05053000 WILD RICE RIVER NEAR ABERCROMBIE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	520	600	650	860	1060	1140	115	750	1080	1100	1100	1100
2	510	570	650	880	1000	1070	120	770	1060	600	970	1220
3	500	540	630	900	1040	1160	160	600	1100	440	1000	1280
4	500	540	620	900	1050	1150	190	600	1160	500	1000	1280
5	490	530	670	900	1060	1050	200	600	1200	700	1020	1300
6	520	540	700	910	1050	1140	180	820	1240	800	1080	1360
7	500	580	760	900	950	1130	190	600	1150	600	1100	1340
8	480	560	700	920	1100	950	220	800	1180	680	1100	1350
9	520	480	720	970	1160	1180	270	800	1160	700	1100	1300
10	480	440	720	970	1200	1180	300	900	1250	660	1100	1300
11	420	450	740	900	1160	1200	330	900	1200	700	1150	1350
12	410	450	720	880	1150	1200	320	880	1180	640	1200	1260
13	400	450	720	950	1130	1270	360	900	1200	590	1200	1200
14	420	460	750	900	1130	1200	400	900	1220	630	1240	1200
15	420	460	760	950	1160	1200	440	940	1260	680	1200	1220
16	440	600	800	960	1200	1240	500	1000	1250	800	1150	1150
17	460	650	800	980	1200	1220	500	1050	1060	900	1180	1160
18	460	600	760	1000	1160	1070	520	1060	1100	900	1100	1110
19	500	600	750	980	1140	1250	500	1080	1180	950	1150	1100
20	500	630	730	930	1150	1140	500	1020	1200	950	1100	1100
21	500	630	750	980	1150	240	520	1090	1200	950	1180	1070
22	500	600	730	950	1060	80	580	1090	1210	940	1160	780
23	500	580	750	1000	1150	90	560	1150	1200	970	1100	520
24	500	580	790	1000	1160	50	580	1180	1220	1000	1100	540
25	540	550	800	980	1080	180	600	1200	1220	1050	1100	600
26	560	600	740	1000	1160	160	650	1200	1200	1050	1070	600
27	560	600	800	1000	1160	120	700	1160	1160	1060	1080	750
28	560	640	820	1000	1150	100	800	1140	1200	1040	1040	950
29	600	640	840	960	---	80	750	1120	1250	1000	1100	1000
30	610	670	850	1000	---	100	770	1100	1200	1000	1060	980
31	610	---	850	1000	---	120	---	1100	---	1000	1100	---
MEAN	500	561	747	949	1120	790	428	974	1180	825	1110	1080

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	9.5	.5	.0	.0	.0	3.0	13.5	16.0	23.5	21.5	21.0
2	12.0	9.0	.0	.0	.0	.5	2.0	14.5	15.0	23.0	20.0	21.0
3	11.5	6.5	1.0	.0	.0	.0	2.0	15.0	16.0	23.0	19.5	22.5
4	11.5	7.5	.5	.0	.0	.0	2.0	15.5	18.0	24.0	19.5	23.0
5	10.5	7.0	.0	.0	.0	.0	5.0	15.5	18.5	26.0	20.0	25.0
6	10.5	8.0	.5	.0	.0	.0	7.0	16.0	20.0	25.5	22.0	26.5
7	8.0	9.0	.0	.0	.0	.0	6.0	14.0	18.0	24.0	23.0	24.5
8	12.0	8.0	.0	.0	.0	.5	7.0	12.5	19.0	22.5	23.0	24.5
9	8.0	6.0	.0	.5	.5	.5	6.5	13.0	18.0	21.0	22.0	22.5
10	7.0	1.0	.0	.0	.0	.5	6.0	15.0	21.0	21.5	22.0	22.5
11	6.5	1.0	.0	.0	.5	.5	7.0	15.0	21.0	21.0	22.5	23.0
12	6.0	1.0	.0	.0	.0	.5	6.0	14.5	20.0	22.0	25.0	21.0
13	7.5	1.5	.0	.0	.0	1.0	6.0	14.5	21.0	23.0	25.5	18.5
14	8.0	2.0	.0	.0	.0	.5	6.0	15.5	20.5	23.0	26.0	18.5
15	8.0	2.5	.5	.0	.0	.5	7.0	15.5	20.5	23.5	24.5	18.5
16	7.5	2.0	1.0	.0	.0	1.0	8.0	16.5	23.0	25.0	22.0	16.5
17	8.0	3.0	1.0	.0	.0	.5	8.5	18.5	20.5	25.5	23.0	16.0
18	7.5	2.0	.5	.0	.0	.5	8.0	19.5	22.0	25.5	21.0	15.0
19	8.0	1.0	.0	.0	.0	1.5	6.0	20.5	21.5	24.5	22.5	15.0
20	8.0	1.5	.0	.0	.0	1.0	5.0	17.0	19.5	22.5	20.5	14.0
21	8.0	1.0	.0	.0	.0	.5	6.0	18.5	20.0	22.5	22.0	14.0
22	7.0	1.0	.0	.0	.0	1.0	8.0	18.0	21.0	21.5	21.0	13.5
23	7.0	.5	.0	.5	.0	.5	7.5	20.5	20.5	22.0	21.5	15.0
24	7.5	.5	.0	.5	.5	1.0	7.0	21.5	21.0	22.5	22.0	15.0
25	7.5	.5	.0	.0	.0	1.0	8.5	23.0	22.0	24.0	22.0	14.5
26	8.0	.5	.0	.0	.0	1.5	11.0	23.5	22.0	24.0	23.5	15.0
27	8.5	.5	.5	.0	.0	1.5	13.0	21.5	23.0	23.0	24.0	14.0
28	8.0	1.0	.5	.0	.0	1.5	13.0	20.0	24.0	22.0	23.5	13.5
29	9.0	.5	.5	.0	---	1.0	13.5	19.5	26.0	21.5	22.0	13.5
30	10.0	1.5	.0	.0	---	5.0	14.0	18.0	24.5	20.5	20.0	13.0
31	11.0	---	.0	.0	---	5.0	---	19.0	---	21.0	20.0	---
MEAN	8.5	3.5	.0	.0	.0	1.0	7.0	17.0	20.5	23.0	22.0	18.5

05054000 RED RIVER OF THE NORTH AT FARGO, ND

LOCATION.--Lat 46°51'40", long 96°47'00", in NW¼NE¼ sec.18, T.139 N., R.48 W., Cass County, Hydrologic Unit 09020104, at city waterplant on 4th St. S. in Fargo, 25 mi (40 km) upstream from mouth of Sheyenne River, and at mile 453.0 (728.9 km).

DRAINAGE AREA.--6,800 mi² (17,600 km²), approximately.

PERIOD OF RECORD.--May 1901 to current year. Published as "at Moorhead, Minn." 1901. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1902-4, 1906-7, 1910-14, 1916, 1918, 1924. WSP 1388: 1905-6, 1917-20(M), 1935(M), 1938-39(M), 1943.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 861.8 ft (262.68 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1960, to Sept. 30, 1962, water-stage recorder at present site at datum 5.6 ft (1.71 m) higher. See WSP 1728 or 1913 for history of changes prior to Oct. 1, 1960.

REMARKS.--Records good. Flow regulated by Orwell Reservoir, capacity, 14,100 acre-ft (17.4 hm³) at elevation 1,070 ft (326.136 m) National Geodetic Vertical Datum of 1929, adjustment of 1912; Lake Traverse, capacity, 137,000 acre-ft (169 hm³), available for flood control; other controlled lakes and ponds; and several powerplants. Some small diversions for municipal supply. Figures of daily discharge do not include diversions to cities of Fargo and Moorhead and from Sheyenne River.

AVERAGE DISCHARGE (UNADJUSTED).--77 years, 550 ft³/s (15.58 m³/s), 398,500 acre-ft/yr (491 hm³/yr); median of yearly mean discharges, 440 ft³/s (12.5 m³/s), 319,000 acre-ft/yr (390 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,300 ft³/s (716 m³/s) Apr. 15, 1969, gage height, 37.34 ft (11.381 m); no flow for many days in each year for period 1932-41, Sept. 30, Oct. 1, 2, 1970, Oct. 10-19, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 7, 1897 reached a stage of 39.1 ft (11.92 m) present datum, discharge, 25,000 ft³/s (708 m³/s) at site 1.5 mi (2.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,500 ft³/s (496 m³/s) Apr. 2, gage height, 34.41 ft (10.488 m); minimum, 24 ft³/s (0.68 m³/s) Sept. 17, 18, 19, gage height, 13.38 ft (4.078 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	446	144	450	470	350	350	13800	2000	1460	886	740	109
2	456	156	440	470	330	350	16800	1960	1470	495	716	104
3	425	177	410	470	360	360	17000	1920	1450	1440	705	102
4	406	186	405	470	360	395	15500	1990	1440	1770	674	98
5	382	190	400	440	360	418	14500	1670	1440	1800	613	86
6	370	204	370	435	350	440	13300	1860	1430	1710	562	76
7	406	228	340	435	350	442	12400	1860	1360	1580	567	63
8	400	263	310	435	350	460	11400	1870	1310	1470	552	58
9	366	296	310	435	350	500	10400	1880	1320	1900	537	49
10	370	302	310	410	350	500	9400	1890	1360	2430	525	46
11	443	208	330	425	340	475	8200	1860	1440	2800	475	46
12	443	148	320	435	340	455	7250	1880	1380	3230	440	56
13	462	160	310	450	340	450	6400	1870	1350	3120	400	52
14	475	166	350	475	330	450	5620	1840	1320	2790	370	45
15	459	233	395	480	330	445	5300	1790	1290	2240	340	38
16	434	350	395	440	310	440	4750	1770	1360	1900	325	34
17	362	430	395	400	300	430	4100	1750	1260	1660	315	27
18	353	420	395	435	290	430	3450	1710	1250	1520	308	27
19	324	400	394	435	290	440	2800	1720	1170	1410	288	29
20	274	380	393	430	290	450	2500	1710	1030	1240	258	88
21	258	360	392	420	290	460	2280	1680	977	1120	191	160
22	248	350	390	400	290	490	2200	1670	977	1070	143	238
23	228	340	390	360	300	520	2250	1650	1040	1110	170	296
24	223	370	350	340	330	550	2330	1630	977	1170	152	263
25	213	470	330	330	330	600	2360	1620	1000	1180	153	204
26	204	490	370	310	320	790	2360	1560	1120	995	153	152
27	177	490	410	300	315	1500	2340	1550	1110	732	142	118
28	172	480	430	300	310	3600	2300	1540	1080	613	126	166
29	172	475	450	300	---	5400	2220	1520	1000	685	116	287
30	172	465	460	300	---	7500	2080	1510	954	795	118	296
31	160	---	470	340	---	10000	---	1480	---	771	115	---
TOTAL	10327	9333	11844	12575	9175	40098	207790	54430	37165	48132	11289	3413
MEAN	333	311	382	406	328	1293	6926	1756	1239	1553	364	114
MAX	475	490	470	480	360	10000	17000	2000	1470	3230	740	296
MIN	160	144	310	300	290	350	2080	1480	954	613	115	27
AC-FT	20480	18510	23490	24940	18200	79530	412200	108000	73720	95470	22390	6770
(+)	864	844	832	894	926	958	885	1090	1100	1110	1230	1110
MEAN*	347	325	396	420	345	1309	6941	1774	1258	1571	384	133
AC-FT*	21340	19350	24320	25830	18130	80490	413100	109100	74820	96580	23620	7880

	OBSERVED									ADJUSTED		
CAL YR 1977	TOTAL 54297.08	MEAN 149	MAX 638	MIN 58	AC-FT 107700	MEAN 158	AC-FT 114100
WTR YR 1978	TOTAL 455571.00	MEAN 1248	MAX 17000	MIN 27	AC-FT 903600	MEAN 1265	AC-FT 915600

+ Diversions in acre-feet to cities of Fargo and Moorhead.
* Adjusted for diversions to cities of Fargo and Moorhead.

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND
(National stream-quality accounting network station)
(Radiochemical Station)

LOCATION.--Lat 46°55'50", long 96°47'05", in SW¼NE¼ sec.19, T.140 N., R.48 W., Cass County, Hydrologic Unit 09020104, at bridge on county highway 2 mi (3.2 km) north of North Dakota State University campus in Fargo, and 12 mi (19 km) above mouth of Sheyenne River.

DRAINAGE AREA.--6,820 mi² (17,660 km²), approximately.

PERIOD OF RECORD.--Water years 1969 to March 1978.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1973 to September 1974, October 1975 to March 1978.
WATER TEMPERATURES: October 1973 to September 1974, October 1975 to March 1978.

INSTRUMENTATION.--Water-quality monitor from October 1973 to March 1978.

REMARKS.--Fragmentary records of specific conductance and temperature for October 1974 to September 1975 are available in the Bismarck District office. Records of discharge are given for station 05054000 Red River of the North at Fargo, N. Dak., and are unadjusted for treated sewage inflow between sites. Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,220 micromhos Nov. 7, 1976; minimum, 206 micromhos July 4, 1977.
WATER TEMPERATURES: Maximum, 31.5°C July 19, 1977; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
19...	1630	270	650	8.2	9.5	--	11.2	100	K340	210	300	99
NOV												
29...	1630	473	600	8.1	.0	--	12.6	90	4400	K13000	300	68
DEC												
21...	1130	390	600	8.2	.0	--	10.4	74	2800	3300	300	70
JAN												
30...	1130	300	655	7.8	.5	9	--	--	--	--	340	71
FEB												
22...	1345	268	575	7.8	.5	5	--	--	--	--	300	46
MAR												
15...	1215	445	560	8.1	.0	6	--	--	--	--	280	43
APR												
27...	1600	2340	500	8.5	11.0	25	--	--	--	--	240	89
MAY												
25...	0845	1620	595	8.1	20.5	7	--	--	--	--	270	100
JUN												
28...	1700	1080	740	7.5	24.5	11	--	--	--	--	350	150
JUL												
28...	0930	613	700	8.3	23.5	25	--	--	--	--	310	96
SEP												
01...	0945	109	850	8.2	20.0	26	--	--	--	--	330	100
26...	1620	152	1010	8.2	16.0	23	--	--	--	--	510	260

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT												
19...	59	38	24	14	.6	7.4	250	0	210	2.5	120	15
NOV												
29...	58	37	16	10	.4	5.3	280	0	230	3.6	74	10
DEC												
21...	54	40	17	11	.4	5.4	280	0	230	2.8	78	13
JAN												
30...	61	46	20	11	.5	5.7	330	0	270	8.4	87	12
FEB												
22...	56	39	17	11	.4	5.3	310	0	250	7.9	52	12
MAR												
15...	50	38	20	13	.5	5.5	290	0	240	3.7	46	19
APR												
27...	55	26	16	12	.4	6.6	190	0	160	1.0	100	7.6
MAY												
25...	55	33	18	12	.5	6.1	210	0	170	2.7	120	8.5
JUN												
28...	73	41	28	14	.7	7.1	250	0	210	13	190	9.0
JUL												
28...	66	35	27	16	.7	7.4	260	0	210	2.1	140	10
SEP												
01...	71	38	31	16	.7	7.8	280	0	230	2.8	150	14
26...	98	64	50	17	1.0	11	300	0	250	3.0	330	21

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 19...	.2	11	416	440	398	.57	303	24	.30	--	.10
NOV 29...	.3	8.0	371	--	347	.50	474	--	.33	--	.20
DEC 21...	.3	17	374	--	363	.51	394	--	.49	--	.39
JAN 30...	.2	21	422	--	419	.57	342	--	--	.67	--
FEB 22...	.2	17	355	--	353	.48	276	--	--	.44	--
MAR 15...	.2	13	302	--	337	.41	363	--	--	.47	--
APR 27...	.2	14	333	--	321	.45	2100	--	--	.43	--
MAY 25...	.0	.1	366	--	344	.50	1600	--	--	--	--
JUN 28...	.2	14	471	--	488	.64	1370	--	--	.41	--
JUL 28...	.2	19	468	--	434	.64	775	--	--	.28	--
SEP 01...	.2	16	511	--	468	.70	150	--	--	.43	--
26...	.3	15	769	--	738	1.05	516	--	--	.22	--

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT 19...	.85	.26	.19	5	0	5	0	0	100	--
NOV 29...	.80	.11	.00	--	--	--	--	--	--	--
DEC 21...	1.0	.19	.16	--	--	--	--	--	--	--
JAN 30...	--	--	.24	--	--	--	--	--	--	100
FEB 22...	--	--	.18	--	--	--	--	--	--	90
MAR 15...	--	--	.19	--	--	--	--	--	--	90
APR 27...	--	--	.07	--	--	--	--	--	--	80
MAY 25...	--	--	.07	--	--	--	--	--	--	100
JUN 28...	--	--	.17	--	--	--	--	--	--	140
JUL 28...	--	--	.23	--	--	--	--	--	--	170
SEP 01...	--	--	.29	--	--	--	--	--	--	170
26...	--	--	.24	--	--	--	--	--	--	260

DATE	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 19...	1	5	0	10	<50	<50	0	<10	<6	4

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)
OCT 19...	630	20	90	60	30	.0	.0	.0	0
NOV 29...	--	--	--	--	--	--	--	--	--
DEC 21...	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)
OCT 19...	0	0	<10	<10	0	10	0	20	9.1
NOV 29...	--	--	--	--	--	--	--	--	--
DEC 21...	--	--	--	--	--	--	--	--	--

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT 19...	1.4	15	1.9	13	1.9	.12	2.3	8.9	--
NOV 29...	--	--	--	--	--	--	--	10	.7
DEC 21...	--	--	--	--	--	--	--	10	.6

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 19...	32	23	96
NOV 29...	26	33	69
DEC 21...	32	34	68

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$)		Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 19	29	5,280	3,540	0.362	0.017	4,806	Polyethylene strip
Jan. 30	38	1,570	790	.000	.000	--	Polyethylene strip

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	679	625	600	564	628	575	839	749	534	522
2	842	724	643	628	598	560	618	577	744	724	529	519
3	---	---	656	628	592	558	623	582	725	717	518	511
4	880	852	637	619	612	568	643	599	743	717	519	510
5	919	886	627	608	616	579	657	616	783	739	518	509
6	922	783	623	606	619	580	665	620	767	714	525	513
7	783	735	626	611	620	580	675	640	710	681	522	509
8	842	761	628	582	628	581	681	644	678	659	522	511
9	906	849	604	566	670	605	694	643	666	655	518	506
10	867	846	596	566	681	645	701	646	662	640	518	505
11	861	842	651	600	679	636	675	619	658	642	529	510
12	870	849	654	609	677	636	658	617	655	644	514	501
13	858	816	649	620	674	625	665	631	649	632	502	476
14	824	786	665	629	672	627	676	642	641	633	482	471
15	853	802	697	663	677	606	680	638	639	627	474	463
16	849	821	699	659	634	589	664	554	627	613	475	462
17	874	852	686	638	685	608	606	556	620	607	479	468
18	880	874	671	615	697	574	---	---	612	602	476	465
19	659	643	643	596	---	---	---	---	606	596	470	459
20	684	659	631	583	---	---	---	---	598	590	472	462
21	715	687	698	634	606	579	---	---	588	581	473	455
22	725	715	682	577	608	568	---	---	585	575	461	444
23	731	724	599	562	606	560	---	---	577	573	446	409
24	737	707	614	574	609	568	---	---	575	567	398	383
25	714	670	604	572	619	578	---	---	565	543	397	392
26	680	657	605	568	636	594	---	---	556	537	397	370
27	668	649	601	564	650	610	---	---	548	539	363	296
28	667	652	608	565	686	620	---	---	535	525	293	231
29	667	652	608	567	692	587	---	---	---	---	247	231
30	668	596	601	560	613	570	689	655	---	---	---	---
31	657	606	---	---	608	565	888	683	---	---	---	---
MONTH	922	596	699	560	697	558	888	554	839	525	534	231

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	11.0	9.5	.5	.0	.0	.0	.5	.5	.5	.5
2	---	---	9.5	8.0	.5	.0	.0	.0	.5	.5	.5	.5
3	---	---	9.5	8.5	.0	.0	.0	.0	.5	.5	.5	.5
4	19.5	18.5	8.5	7.5	.0	.0	.0	.0	.5	.5	.5	.5
5	19.5	18.5	9.0	7.5	.0	.0	---	---	.5	.5	.5	.5
6	18.5	16.5	9.5	9.0	.0	.0	.0	.0	.5	.5	.5	.5
7	16.5	15.5	10.0	9.5	.0	.0	.0	.0	.5	.5	.5	.5
8	17.0	15.5	10.0	7.0	.0	.0	.0	.0	.5	.5	.5	.5
9	17.0	15.5	6.5	3.5	.0	.0	.0	.0	.5	.5	.5	.5
10	15.5	15.0	3.5	2.5	.0	.0	---	---	.5	.5	.5	.5
11	15.5	14.5	3.5	2.5	.0	.0	---	---	.5	.5	.5	.5
12	16.5	15.0	2.5	1.5	.0	.0	.0	.0	.5	.5	.5	.5
13	16.5	15.5	2.5	1.5	.0	.0	.0	.0	.5	.5	.5	.5
14	15.5	14.5	2.5	2.0	.0	.0	.0	.0	1.0	.5	.5	.5
15	15.5	14.5	3.0	2.0	.0	.0	.0	.0	1.0	.5	.5	.5
16	15.5	15.0	2.5	1.5	.0	.0	---	---	1.0	.5	.5	.5
17	15.5	15.0	2.0	1.5	.0	.0	---	---	.5	.5	.5	.5
18	16.0	15.0	1.5	1.5	.0	.0	---	---	.5	.5	.5	.5
19	10.0	9.5	1.5	.5	---	---	---	---	1.0	.5	.5	.5
20	10.5	9.0	.5	.0	---	---	---	---	.5	.5	.5	.5
21	10.0	9.5	.5	.0	.0	.0	---	---	.5	.5	.5	.5
22	9.5	8.5	.5	.0	.0	.0	---	---	.5	.5	1.0	.5
23	9.0	8.0	.5	.5	.0	.0	---	---	.5	.5	.5	.0
24	9.5	8.5	.0	.0	.0	.0	---	---	.5	.5	.5	.0
25	9.5	8.5	.5	.0	.0	.0	---	---	.5	.5	.5	.5
26	10.5	9.0	.5	.0	.0	.0	---	---	.5	.5	1.0	.5
27	10.5	9.5	1.0	.0	.0	.0	---	---	.5	.5	1.0	.0
28	9.5	8.5	1.0	.0	.0	.0	---	---	1.0	.5	1.0	.0
29	11.0	9.5	.0	.0	.0	.0	---	---	---	---	.5	.0
30	11.0	11.0	.5	.0	.0	.0	.5	.5	---	---	---	---
31	11.0	10.5	---	---	.0	.0	1.0	.5	---	---	---	---
MONTH	19.5	8.0	11.0	.0	.5	.0	1.0	.0	1.0	.5	1.0	.0

05054020 RED RIVER OF THE NORTH BELOW FARGO, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										660	775	780
2										650	800	775
3										665	750	790
4										650	725	760
5										650	750	760
6										595	750	795
7										575	720	805
8										600	740	800
9										580	730	800
10										665	750	780
11										440	775	805
12										440	760	845
13										445	755	805
14										480	745	840
15										520	730	890
16										520	755	890
17										600	780	870
18										650	760	910
19										620	730	945
20										695	765	960
21										700	715	950
22										700	715	960
23										700	665	945
24										725	580	980
25										725	725	980
26										690	720	1030
27										700	720	1130
28										700	755	1140
29										725	785	1110
30										700	760	1140
31										725	775	---
MEAN										650	739	900

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										25.5	23.0	22.5
2										26.5	22.0	24.0
3										26.5	22.0	24.5
4										26.5	21.0	24.5
5										26.5	21.5	26.5
6										26.5	22.5	27.0
7										26.5	24.5	26.5
8										26.0	23.5	26.0
9										26.0	23.5	25.0
10										24.5	24.5	24.5
11										21.5	24.5	24.5
12										21.5	25.5	20.0
13										22.5	26.5	18.0
14										23.5	26.5	18.0
15										24.5	25.5	18.5
16										25.5	24.5	18.0
17										26.5	23.5	17.0
18										26.5	23.5	16.5
19										25.5	23.0	15.5
20										25.5	24.0	15.0
21										25.0	24.5	15.0
22										24.5	22.0	15.5
23										24.5	23.0	16.0
24										25.0	23.0	16.0
25										25.0	25.0	16.0
26										25.5	25.5	15.5
27										25.5	25.5	14.5
28										25.5	23.5	14.5
29										25.0	22.5	14.0
30										25.0	22.0	14.5
31										25.0	22.0	---
MEAN										25.0	23.5	19.5

05054500 SHEYENNE RIVER ABOVE HARVEY, ND

LOCATION.--Lat 47°42'10", long 99°56'55", in SW¼SE¼ sec.24, T.149 N., R.73 W., Wells County, Hydrologic Unit 09020202, on right bank just downstream from county road, and 4.5 mi (7.2 km) south of Harvey.

DRAINAGE AREA.--424 mi^2 (1,098 km^2), of which about 270 mi^2 (700 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1955 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,547.30 ft (471.617 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for the winter period, which is fair.

AVERAGE DISCHARGE.--23 years, 6.01 ft^3/s (0.170 m^3/s), 4,350 acre-ft/yr (5.34 hm^3/yr); median of yearly mean discharges, 4.5 ft^3/s (0.13 m^3/s), 3,260 acre-ft/yr (4.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 410 ft^3/s (11.6 m^3/s) Mar. 15, 1966, gage height, 9.21 ft (2.807 m); maximum gage height, 10.30 ft (3.139 m) Apr. 1, 1971, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 148 ft^3/s (4.19 m^3/s) Mar. 27, gage height, 8.78 ft (2.676 m), only peak above base of 25 ft^3/s (0.71 m^3/s); maximum gage height, 9.42 ft (2.871 m) Mar. 22, backwater from ice; minimum daily, 0.07 ft^3/s (0.002 m^3/s) Aug. 14, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	1.8	.50	.25	.25	.45	50	8.8	9.5	.78	.56	.52
2	2.1	1.8	.45	.25	.25	.45	36	8.0	8.7	.31	.52	.37
3	4.4	1.7	.40	.25	.25	.45	25	7.8	7.1	.42	.44	.42
4	.66	1.4	.35	.25	.25	.45	25	7.8	6.2	7.2	.44	.50
5	4.5	1.5	.35	.25	.25	.45	23	7.9	5.6	11	.23	.41
6	1.8	1.7	.30	.25	.25	.50	23	7.6	5.0	8.5	.22	.21
7	3.2	1.9	.25	.25	.25	.55	21	8.2	4.4	4.4	.20	.12
8	8.5	1.7	.25	.25	.25	.60	18	15	4.0	4.7	.14	.20
9	9.3	1.8	.25	.25	.25	.75	17	17	3.4	8.0	.14	.24
10	5.9	1.6	.25	.25	.25	1.0	15	17	2.8	5.6	.11	.27
11	3.7	1.6	.25	.25	.25	1.0	14	14	2.6	4.0	.12	.33
12	3.4	1.6	.30	.25	.25	1.0	16	11	5.1	3.2	.09	1.3
13	2.9	1.6	.35	.25	.25	1.1	14	9.6	4.3	2.7	.09	1.4
14	2.6	1.6	.35	.25	.25	1.2	12	8.0	4.0	2.3	.07	.83
15	1.8	1.6	.40	.25	.25	1.4	9.8	6.7	4.4	2.2	.08	.61
16	1.4	1.6	.40	.25	.25	1.5	8.1	5.6	4.7	2.0	.08	.59
17	4.3	1.6	.40	.25	.30	1.8	7.1	4.6	3.9	2.2	.07	.92
18	2.5	1.5	.40	.25	.35	2.0	7.0	3.5	3.6	2.3	.07	.81
19	1.1	1.5	.35	.25	.40	6.0	6.3	3.3	3.3	2.8	.09	1.1
20	.96	1.3	.30	.25	.45	12	11	3.8	2.9	2.9	.22	.58
21	4.0	1.1	.25	.25	.50	60	12	4.1	2.5	2.5	.24	.36
22	1.5	1.0	.25	.25	.55	110	13	5.4	2.2	2.2	.22	.59
23	.58	.90	.25	.25	.60	72	13	5.0	1.9	2.0	.43	.61
24	1.5	.80	.25	.25	.55	60	13	4.3	1.8	1.7	.56	.55
25	2.2	.70	.25	.25	.50	90	13	5.7	1.7	1.3	.47	.60
26	2.1	.60	.25	.25	.45	135	12	7.9	1.7	.93	.92	.69
27	2.6	.50	.25	.25	.45	140	12	7.6	1.3	.61	.94	.68
28	.64	.50	.25	.25	.45	130	11	6.6	1.0	.59	.67	.69
29	2.0	.60	.25	.25	---	115	10	5.9	.87	.63	.63	.71
30	1.6	.60	.25	.25	---	72	9.4	5.5	.86	.69	.61	.79
31	1.8	---	.25	.25	---	60	---	7.3	---	.59	.64	---
TOTAL	89.44	39.70	9.60	7.75	9.55	1078.65	476.7	240.5	111.33	91.25	10.31	18.00
MEAN	2.89	1.32	.31	.25	.34	34.8	15.9	7.76	3.71	2.94	.33	.60
MAX	9.3	1.9	.50	.25	.60	140	50	17	9.5	11	.94	1.4
MIN	.58	.50	.25	.25	.25	.45	6.3	3.3	.86	.31	.07	.12
AC-FT	177	79	19	15	19	2140	946	477	221	181	20	36

CAL YR 1977 TOTAL 609.94 MEAN 1.67 MAX 19 MIN .00 AC-FT 1210
WTR YR 1978 TOTAL 2182.78 MEAN 5.98 MAX 140 MIN .07 AC-FT 4330

05054500 SHEYENNE RIVER ABOVE HARVEY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT									
07...	1000	2.1	1390	7.9	5.0	80	170	0	36
NOV									
02...	1530	1.7	1490	8.5	8.5	2	180	0	38
29...	0930	.50	1630	7.8	.0	60	160	0	34
JAN									
03...	1400	.16	1460	7.4	.0	43	210	0	48
FEB									
09...	1245	.24	1140	7.7	.5	23	190	0	48
28...	1630	.46	1200	7.7	.5	33	140	0	35
MAR									
24...	1445	58	340	--	.5	--	--	--	--
27...	1620	144	345	--	3.0	--	--	--	--
31...	1050	60	460	--	8.5	--	--	--	--
APR									
04...	1745	24	800	7.9	8.5	75	180	0	40
13...	1830	14	1100	--	6.5	--	--	--	--
MAY									
01...	1725	9.0	1290	8.3	18.5	65	280	0	41
31...	1310	7.4	1240	8.0	15.0	95	270	0	40
JUL									
06...	1430	8.4	1240	7.8	25.0	180	180	0	24
31...	1610	.56	1220	8.5	23.5	80	180	0	29
SEP									
05...	1800	.38	1350	8.8	28.5	90	140	0	31

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
07...	20	300	78	9.9	7.7	640	0	530	13
NOV									
02...	20	320	79	10	6.0	740	22	640	4.0
29...	19	350	82	12	6.2	800	0	660	20
JAN									
03...	22	310	76	9.3	5.9	750	--	620	48
FEB									
09...	18	220	71	6.9	5.0	640	0	530	20
28...	13	270	80	9.9	4.2	650	0	530	21
MAR									
24...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
04...	19	140	62	4.6	7.6	390	0	320	7.9
13...	--	--	--	--	--	--	--	--	--
MAY									
01...	44	230	63	5.9	12	620	0	510	5.0
31...	41	240	65	6.4	9.4	630	0	520	10
JUL									
06...	28	250	74	8.2	9.6	550	0	450	14
31...	26	230	72	7.5	8.6	610	4	510	3.1
SEP									
05...	14	290	81	11	8.5	700	0	570	1.8

05054500 SHEYENNE RIVER ABOVE HARVEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT									
07...	240	21	.3	31	921	974	1.25	5.37	.07
NOV									
02...	230	18	.2	27	941	1050	1.28	4.32	.08
29...	220	22	.4	40	1070	1090	1.46	1.44	.09
JAN									
03...	240	19	.4	49	1040	1060	1.41	.45	.01
FEB									
09...	150	15	.4	48	797	817	1.08	.52	.06
28...	160	17	.5	31	856	853	1.16	1.06	.01
MAR									
24...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
04...	140	9.7	.2	22	579	573	.79	37.5	.21
13...	--	--	--	--	--	--	--	--	--
MAY									
01...	260	14	.3	21	956	929	1.30	23.2	.02
31...	210	17	.3	15	902	884	1.23	18.0	.03
JUL									
06...	230	20	.2	14	852	848	1.16	19.3	.01
31...	150	16	.3	6.3	824	772	1.12	1.25	.02
SEP									
05...	140	21	.4	17	884	868	1.20	.91	.04

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT											
07...	.16	--	--	50	3	400	810	0	0	0	0
NOV											
02...	.13	--	--	--	--	--	840	--	--	--	--
29...	.35	--	--	--	--	--	890	--	--	--	--
JAN											
03...	.39	--	--	--	--	--	800	--	--	--	--
FEB											
09...	.27	--	--	--	--	--	560	--	--	--	--
28...	.40	.24	.74	--	--	--	710	--	--	--	--
APR											
04...	.21	--	--	0	4	100	350	1	0	0	1
MAY											
01...	.17	--	--	--	--	--	750	--	--	--	--
31...	.22	--	--	--	--	--	820	--	--	--	--
JUL											
06...	.43	--	--	--	--	--	880	--	--	--	--
31...	.10	--	--	--	--	--	780	--	--	--	--
SEP											
05...	.19	--	--	--	--	--	860	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
07...	100	0	120	50	.0	1	2	0	270	1.3	0	.00
FEB												
28...	150	--	--	380	--	--	--	--	--	--	--	--
APR												
04...	170	0	80	70	.1	1	0	0	220	2.0	10	.00

05056000 SHEYENNE RIVER NEAR WARWICK, ND

LOCATION.--Lat 47°48' long 98°42'57", on south quarter of line between secs.15 and 16, T.150 N., R.63 W., Eddy County, Hydrologic Unit 09020203, on left bank on downstream side of county highway bridge, and 3.3 mi (5.3 km) south of Warwick.

DRAINAGE AREA.--2,070 mi² (5,360 km²), approximately, of which about 1,310 mi² (3,390 km²) is probably non-contributing - includes 227 mi² (588 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: 1952(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder and rubble masonry control. Altitude of gage is 1,370 ft (418 m), by barometer.

REMARKS.--Records fair. Records include flow of spring which enters below gage and just above control. Discharge measurements of spring inflow made during the water year are listed below:

Date	Discharge (ft³/s)	Discharge (m³/s)	Date	Discharge (ft³/s)	Discharge (m³/s)	Date	Discharge (ft³/s)	Discharge (m³/s)
Oct. 18	1.46	0.041	Feb. 13	1.31	0.037	June 15	1.15	0.033
Nov. 17	1.25	.035	Mar. 20	1.72	.049	July 12	1.17	.033
Dec. 12	.65	.018	29	2.62	.074	Aug. 23	1.36	.039
Jan. 17	.77	.022	June 5	1.35	.038	Sept.13	1.34	.038

AVERAGE DISCHARGE.--29 years, 50.9 ft³/s (1.441 m³/s), 36,880 acre-ft/yr (45.5 hm³/yr); median of yearly mean discharges, 48 ft³/s (1.36 m³/s), 34,800 acre-ft/yr (43 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,660 ft³/s (132 m³/s) Apr. 14, 1969, gage height, 7.51 ft (2.289 m); maximum gage height, 7.83 ft (2.387 m) Apr. 18, 1956; no flow Aug. 7 to Sept. 1, Sept. 3-9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,440 ft³/s (40.8 m³/s) Apr. 5, gage height, 6.10 ft (1.859 m), backwater from ice; only peak above base of 200 ft³/s (5.66 m³/s); minimum daily, 0.48 ft³/s (0.014 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	3.5	4.5	5.5	2.4	3.2	671	28	20	10	11	12
2	1.8	3.8	4.1	5.5	2.4	3.2	900	26	25	8.4	10	10
3	1.6	3.8	4.1	5.5	2.4	3.8	1100	25	30	6.5	9.2	7.7
4	1.3	3.5	4.1	5.5	2.4	3.8	1300	24	33	10	8.4	6.5
5	1.5	3.8	4.1	5.5	2.4	3.8	1400	23	33	7.1	7.1	4.5
6	1.3	3.5	4.1	5.5	2.4	3.8	1100	21	28	7.1	6.5	3.2
7	1.6	3.5	4.1	5.5	2.4	3.8	710	20	25	7.7	6.0	2.7
8	2.2	4.1	4.1	5.5	2.2	3.8	496	22	23	11	5.5	2.4
9	2.7	4.1	4.1	5.5	2.4	3.8	418	26	19	13	6.0	1.6
10	2.4	4.5	4.1	5.5	2.0	4.5	359	30	17	12	7.1	1.5
11	6.5	4.5	4.1	5.5	2.2	4.5	320	32	16	14	9.2	1.1
12	7.7	4.1	4.1	5.5	2.0	4.5	255	30	16	20	12	2.2
13	7.7	4.1	3.8	5.5	2.0	4.5	230	26	14	19	15	2.4
14	4.5	4.1	3.8	5.5	2.0	4.5	210	23	13	18	19	2.2
15	3.5	4.1	3.8	5.5	2.0	4.5	158	23	12	15	20	1.6
16	3.5	4.1	3.8	5.5	2.0	5.0	119	23	12	15	20	1.5
17	3.2	3.8	4.1	5.5	2.0	5.0	87	22	11	13	20	1.1
18	3.2	3.8	4.5	4.5	2.2	5.5	74	21	11	11	16	.96
19	3.5	4.1	5.0	4.1	2.2	5.5	68	21	9.2	12	15	1.3
20	3.8	7.1	5.5	3.5	2.2	6.0	60	20	6.5	11	14	1.1
21	3.5	7.1	5.5	2.9	2.4	6.5	53	18	7.7	10	12	1.1
22	3.2	5.5	5.5	2.9	2.7	10	48	18	7.7	16	11	.96
23	3.2	4.5	5.5	2.9	2.7	12	46	18	7.1	26	12	.96
24	3.2	4.5	5.5	2.9	2.7	14	46	15	6.5	26	11	.96
25	3.2	4.1	5.5	2.9	2.7	19	43	15	7.7	23	8.4	.64
26	3.2	.00	5.5	2.9	2.9	34	41	16	9.2	20	19	.64
27	3.2	.00	5.5	2.9	3.2	62	38	12	10	16	18	.64
28	3.2	.00	5.5	2.4	3.2	90	34	12	10	15	15	.64
29	3.5	4.5	5.5	2.4	---	119	32	17	10	14	12	.48
30	3.5	4.5	5.5	2.4	---	158	29	19	10	13	11	.64
31	3.5	---	5.5	2.4	---	333	---	19	---	12	11	---
TOTAL	101.9	116.60	144.4	135.5	66.7	944.5	10445	665	459.6	431.8	377.4	75.22
MEAN	3.29	3.89	4.66	4.37	2.38	30.5	348	21.5	15.3	13.9	12.2	2.51
MAX	7.7	7.1	5.5	5.5	3.2	333	1400	32	33	26	20	12
MIN	1.3	.00	3.8	2.4	2.0	3.2	29	12	6.5	6.5	5.5	.48
AC-FT	202	231	286	269	132	1870	20720	1320	912	856	749	149

CAL YR 1977 TOTAL 2090.50 MEAN 5.73 MAX 56 MIN .00 AC-FT 4150
WTR YR 1978 TOTAL 13963.62 MEAN 38.3 MAX 1400 MIN .00 AC-FT 27700

05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued
(Irrigation network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: January 1951 to September 1962, October 1963 to September 1964, October 1965 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,940 micromhos Feb. 1, 1955; minimum daily, 165 micromhos Mar. 17, 1975.
WATER TEMPERATURES: Maximum daily, 30.5°C July 1, 1974; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,200 micromhos June 8; minimum daily, 280 micromhos Mar. 31.
WATER TEMPERATURES: Maximum daily, 28.0°C Sept. 4; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT									
18...	1505	3.3	500	8.5	8.0	8	190	0	44
NOV									
17...	1230	3.9	700	9.2	3.5	15	220	0	37
DEC									
12...	1330	3.9	520	7.4	1.5	12	270	0	60
JAN									
17...	1315	5.4	670	7.6	.0	4	320	0	72
FEB									
13...	1325	2.1	720	7.4	.0	9	360	18	86
MAR									
20...	1640	5.8	750	7.3	1.0	37	370	30	94
29...	1035	117	350	--	.5	--	--	--	--
APR									
05...	1320	1440	430	--	1.0	--	--	--	--
09...	1340	426	490	6.3	4.5	65	150	0	31
MAY									
17...	1010	23	850	8.4	19.0	27	290	0	59
JUN									
05...	1800	33	1000	8.4	21.0	33	300	0	57
JUL									
12...	1020	22	950	8.6	22.0	37	240	0	42
AUG									
23...	1330	12	800	8.5	17.0	35	240	0	47
SEP									
13...	1120	2.4	805	8.3	17.0	30	220	0	40

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
18...	20	24	21	.8	3.8	240	0	200	1.2
NOV									
17...	31	73	41	2.1	7.7	300	0	250	.3
DEC									
12...	29	37	22	1.0	6.6	330	0	270	21
JAN									
17...	33	30	17	.7	6.2	400	0	330	16
FEB									
13...	36	37	18	.8	6.6	420	0	340	27
MAR									
20...	34	30	15	.7	6.0	420	0	340	34
29...	--	--	--	--	--	--	--	--	--
APR									
05...	--	--	--	--	--	--	--	--	--
09...	17	50	41	1.8	7.6	200	0	160	1.6
MAY									
17...	34	80	37	2.1	7.0	400	3	330	2.6
JUN									
05...	39	140	49	3.5	9.2	440	16	390	3.0
JUL									
12...	33	140	55	3.9	8.7	430	0	350	1.7
AUG									
23...	29	93	45	2.6	7.1	380	18	340	2.1
SEP									
13...	29	100	49	2.9	7.2	380	0	310	3.0

05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT									
18...	55	6.0	.1	14	265	285	.36	2.36	.01
NOV									
17...	100	15	.2	3.5	417	416	.57	4.39	.04
DEC									
12...	58	15	.2	18	382	387	.52	4.02	.12
JAN									
17...	60	10	.2	20	43[illegible]	429	.58	6.27	.12
FEB									
15...	67	11	.2	27	485	479	.66	2.75	.28
MAR									
20...	64	10	.2	32	456	478	.62	7.14	.08
29...	--	--	--	--	--	--	--	--	--
APR									
05...	--	--	--	--	--	--	--	--	--
09...	77	7.5	.1	14	316	305	.43	363	.31
MAY									
17...	120	16	.2	21	536	538	.73	32.9	.10
JUN									
05...	160	18	.2	7.2	689	664	.94	61.4	.03
JUL									
12...	150	20	.3	3.3	631	610	.86	37.5	.05
AUG									
23...	100	13	.2	7.7	519	503	.71	16.8	.04
SEP									
13...	110	14	.2	9.0	511	497	.70	3.31	.06

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
18...	.36	--	--	--	50	--	--	--	--
NOV									
17...	.02	--	--	--	90	--	--	--	--
DEC									
12...	.07	--	--	--	100	--	--	--	--
JAN									
17...	.05	--	--	--	100	--	--	--	--
FEB									
15...	.09	--	--	--	100	--	--	--	--
MAR									
20...	.15	--	--	--	90	--	--	--	--
APR									
09...	.16	0	4	100	150	3	0	1	4
MAY									
17...	.15	--	--	--	200	--	--	--	--
JUN									
05...	.14	--	--	--	300	--	--	--	--
JUL									
12...	.23	--	--	--	310	--	--	--	--
AUG									
23...	.12	--	--	--	190	--	--	--	--
SEP									
13...	.12	--	--	--	150	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR												
09...	120	5	40	40	.0	2	1	0	180	1.0	10	.00

05056000 SHEYENNE RIVER NEAR WARWICK, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	421	477	582	567	639	716	437	648	928	960	840	920
2	416	513	596	595	639	925	413	650	---	---	846	920
3	417	507	580	580	630	901	413	652	950	940	---	905
4	---	511	600	592	640	901	410	770	957	960	847	915
5	416	522	610	559	650	901	410	743	1000	948	890	905
6	421	498	596	601	649	905	420	---	986	948	870	900
7	416	503	596	558	645	942	417	802	990	---	862	915
8	422	510	603	651	657	896	481	804	1200	---	902	870
9	421	547	550	603	638	830	450	839	1050	955	917	855
10	417	558	552	624	654	735	516	800	989	965	---	860
11	382	542	552	610	646	830	615	806	---	961	925	810
12	378	580	535	645	654	903	530	848	1020	958	925	830
13	374	562	542	652	680	950	530	830	---	950	936	810
14	378	507	540	668	613	876	576	824	970	900	939	690
15	416	537	532	638	623	837	590	836	986	921	948	775
16	480	544	540	652	705	898	623	827	895	---	930	680
17	422	540	540	737	696	860	640	853	895	909	913	730
18	427	555	530	737	700	855	650	840	---	800	923	640
19	---	565	543	750	689	880	650	865	913	840	921	580
20	460	---	527	731	670	817	649	898	893	800	918	585
21	450	645	581	750	702	500	651	---	895	754	860	640
22	447	640	584	728	661	569	649	898	900	756	---	725
23	449	652	604	728	670	799	654	850	902	750	895	590
24	460	640	597	670	659	768	651	887	902	701	---	750
25	460	660	591	---	756	668	680	890	930	692	921	585
26	457	648	563	703	710	613	546	900	900	692	923	520
27	453	---	565	724	697	460	597	920	940	700	916	530
28	462	599	565	707	756	400	621	---	935	694	941	498
29	445	609	552	717	---	333	637	930	941	705	960	450
30	454	631	566	650	---	300	640	948	---	802	950	455
31	479	---	532	582	---	280	---	930	---	806	933	---
MEAN	431	564	566	657	669	743	556	833	955	843	909	728

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	11.0	.0	.0	.0	.0	1.0	16.0	15.0	25.0	22.0	23.0
2	12.0	9.5	.0	1.0	.0	.0	1.0	17.0	---	---	20.0	25.0
3	14.0	8.0	.5	.5	.0	.0	1.5	17.0	18.0	25.0	---	27.0
4	---	8.0	.0	.5	.0	.5	2.0	17.0	21.0	19.0	18.0	28.0
5	14.0	8.0	.0	.0	.0	.5	1.0	16.5	22.0	27.5	22.0	26.0
6	9.0	7.5	.0	.0	.0	1.0	2.0	---	21.0	24.5	24.5	27.0
7	7.0	10.0	.5	.0	.0	1.5	3.0	15.0	19.0	---	25.0	25.0
8	8.0	7.0	.5	.0	.0	1.0	3.0	13.0	20.0	---	22.0	25.0
9	9.0	3.0	.5	.0	.5	1.0	2.0	14.0	20.0	20.5	22.5	24.0
10	10.0	3.0	.5	.0	.5	1.5	1.5	15.0	21.0	21.0	---	26.0
11	9.0	2.0	1.0	.0	.5	1.0	1.0	14.0	---	23.0	24.5	20.0
12	8.0	2.5	1.0	.5	.5	1.0	6.0	16.0	19.0	25.5	25.5	21.0
13	10.0	3.0	1.0	.5	.0	1.0	3.0	17.5	---	24.0	25.0	17.5
14	9.0	3.0	.5	.5	.0	1.0	7.0	17.0	22.5	27.0	24.0	15.0
15	9.0	3.0	1.0	.5	.0	.5	8.0	17.0	20.0	26.5	20.5	17.5
16	11.0	2.5	1.5	.0	.5	.5	8.5	18.0	23.0	---	23.0	16.0
17	10.0	2.0	1.5	.0	.5	1.0	8.0	21.0	21.0	27.0	22.0	15.5
18	9.0	3.0	1.0	.0	.0	1.0	8.5	23.0	---	26.5	21.5	13.5
19	---	2.0	.0	.0	.0	1.0	6.0	17.0	22.0	20.0	23.0	12.0
20	10.0	---	.0	.0	.0	1.0	7.0	16.0	19.0	20.5	23.0	12.5
21	10.0	1.0	.5	.0	.5	2.0	9.0	---	20.0	24.0	23.0	16.0
22	8.0	.5	.5	1.0	1.5	2.0	9.0	19.0	20.0	26.0	---	14.5
23	7.0	.5	1.0	1.0	1.0	1.0	9.0	22.5	23.0	25.5	16.0	14.5
24	8.0	.0	.0	1.0	.5	1.0	10.0	22.0	23.0	26.5	---	13.0
25	8.5	.0	.0	---	.0	2.0	10.0	23.0	20.0	25.0	19.0	16.0
26	9.0	.0	.0	.0	.0	1.0	13.0	22.0	22.0	25.0	22.5	13.5
27	10.0	.0	.0	.0	.0	1.5	14.0	22.0	24.0	24.0	23.0	16.0
28	10.0	.0	1.0	.0	.5	1.5	14.0	---	23.0	22.5	17.0	14.0
29	9.0	-0.5	.0	.0	---	1.5	13.5	24.0	24.0	24.0	18.5	12.0
30	8.0	.5	.0	.0	---	2.0	14.0	22.0	---	22.5	23.0	15.5
31	10.5	---	.0	.0	---	1.0	---	16.0	---	22.0	22.0	---
MEAN	9.5	3.5	.5	.0	.5	1.0	6.5	18.0	21.0	24.0	22.0	18.5

05056100 MAUVAIS COULEE NEAR CANDO, ND

LOCATION.--Lat 48°26'53", long 99°06'08", in SE¼NE¼SE¼ sec.1, T.157 N., R.66 W., Towner County, Hydrologic Unit 09020201, on left bank 0.3 mi (0.5 km) upstream from highway bridge, about 4 mi (6 km) upstream from West Fork, 5.5 mi (8.8 km) southeast of Cando, and 7 mi (11 km) northeast of Maza.

DRAINAGE AREA.--387 mi² (1,000 km²), of which about 10 mi² (26 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,445 ft (440.4 m), from topographic map. Prior to July 2, 1957, nonrecording gage at present site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--22 years, 18.0 ft³/s (0.510 m³/s), 13,000 acre-ft/yr (16.0 hm³/yr); median of yearly mean discharges, 10 ft³/s (0.28 m³/s), 7,200 acre-ft/yr (8.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,500 ft³/s (70.8 m³/s) Apr. 14, 1969, gage height, 11.16 ft (3.402 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1954, reached a stage of 9.83 ft (2.996 m), and flood of Apr. 20, 1956, reached a stage of 10.71 ft (3.264 m), from floodmarks set by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 5	--	--	--	a*7.90	2.408
Apr. 7	--	a140	3.96	--	--
Apr. 11	--	a*400	11.3	--	--

No flow for many days.

a - Backwater from ice.
b - Observed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.08	.01	.01	.01	.00	.50	5.8	30	1.5	.05	.09
2	.02	.09	.01	.01	.01	.00	1.0	5.0	50	1.1	.04	.08
3	.02	.09	.01	.01	.01	.00	2.0	6.6	45	.78	.03	.06
4	.02	.09	.01	.01	.01	.00	3.0	6.6	35	1.2	.02	.05
5	.02	.09	.01	.01	.01	.00	4.0	5.8	30	2.0	.02	.04
6	.02	.09	.01	.01	.01	.00	10	5.0	25	1.1	.03	.03
7	.02	.10	.01	.01	.01	.00	130	4.5	24	.62	.03	.02
8	.04	.10	.01	.01	.01	.00	100	3.8	22	1.3	.03	.02
9	.05	.10	.01	.01	.01	.00	70	3.3	19	1.6	.02	.02
10	.05	.09	.01	.00	.01	.00	175	2.6	16	.98	.02	.02
11	.05	.09	.01	.00	.01	.00	240	2.0	15	.10	.03	.01
12	.05	.09	.01	.00	.01	.00	280	1.9	13	.98	.02	.01
13	.05	.09	.01	.00	.01	.00	280	1.9	12	.09	.02	.02
14	.04	.09	.01	.00	.01	.00	230	1.9	10	.09	.02	.01
15	.04	.10	.01	.00	.01	.00	181	1.8	9.6	.62	.02	.02
16	.04	.10	.01	.00	.01	.01	165	1.9	9.1	.50	.02	.02
17	.04	.07	.01	.00	.01	.01	94	1.9	8.3	.50	.02	.02
18	.04	.05	.01	.00	.01	.01	41	1.9	7.7	.70	.02	.02
19	.04	.03	.01	.00	.01	.01	32	2.0	6.9	.38	.02	.04
20	.05	.01	.01	.00	.01	.01	26	2.0	6.3	.34	.02	.03
21	.05	.01	.01	.00	.01	.01	22	2.0	5.8	.26	.02	.03
22	.05	.01	.01	.00	.01	.01	19	2.0	5.0	.26	.03	.03
23	.05	.01	.01	.00	.01	.01	17	2.0	4.3	.38	.06	.03
24	.05	.01	.01	.00	.01	.01	14	2.0	3.8	.50	.07	.03
25	.06	.01	.01	.01	.01	.01	12	2.0	3.3	.50	.07	.03
26	.06	.01	.01	.01	.01	.01	11	3.0	3.5	.50	.37	.03
27	.06	.01	.01	.01	.01	.02	10	2.0	3.5	.38	.37	.02
28	.06	.01	.01	.01	.00	.02	8.8	2.0	2.8	.34	.26	.02
29	.06	.01	.01	.01	---	.05	7.7	2.0	2.5	.12	.16	.02
30	.07	.01	.01	.01	---	.05	6.9	2.0	2.0	.08	.12	.02
31	.08	---	.01	.01	---	.10	---	3.0	---	.07	.10	---
TOTAL	1.37	1.74	.31	.16	.27	.35	2192.90	92.2	430.4	19.07	2.13	.89
MEAN	.044	.058	.010	.005	.010	.011	73.1	2.97	14.3	.64	.069	.030
MAX	.08	.10	.01	.01	.01	.10	280	6.6	50	2.0	.37	.09
MIN	.02	.01	.01	.00	.00	.00	.50	1.8	2.0	.07	.02	.01
AC-FT	2.7	3.5	.6	.3	.5	.7	4350	183	854	39	4.2	1.8

CAL YR 1977 TOTAL 26.62 MEAN .073 MAX 1.5 MIN .00 AC-FT 53
WTR YR 1978 TOTAL 2742.59 MEAN 7.51 MAX 280 MIN .00 AC-FT 5440

05056200 EDMORE COULEE NEAR EDMORE, ND

LOCATION.--Lat 48°20'14", long 98°39'33", in NW¼ sec.17, T.156 N., R.62 W., Ramsey County, Hydrologic Unit 09020201, on right bank 50 ft (15 m) upstream from bridge on county highway, 11 mi (18 km) southwest of Edmore, and about 13 mi (21 km) upstream from Sweetwater Lake.

DRAINAGE AREA.--382 mi² (989 km²), of which about 100 mi² (259 km²) is probably noncontributing.

PERIOD OF RECORD.--April to June 1956, June 1957 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Prior to June 26, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--21 years (1957-78) 13.2 ft³/s (0.374 m³/s), 9,560 acre-ft/yr (11.8 hm³/yr); median of yearly mean discharges, 9.2 ft³/s (0.26 m³/s), 6,700 acre-ft/yr (8.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 890 ft³ (25.2 m³/s) Apr. 17, 1974, gage height, 6.46 ft (1.969 m); maximum gage height, 6.63 ft (2.021 m) Mar. 25, 1966, backwater from ice, no flow for several months each year.

EXTREMES FOR CURRBNT YEAR.--Maximum discharge, 540 ft³/s (15.3 m³/s) Apr. 7, gage height, 6.49 ft (1.978 m), backwater from ice, only peak above base of 50 ft³/s (1.42 m³/s); no flow for many months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	23	1.0	.02	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	20	1.8	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	18	1.1	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	15	.82	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	5.0	13	.80	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	100	12	.75	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	496	10	.70	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	486	8.5	.65	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	500	7.0	.68	.01	.00	.00
10	.00	.00	.00	.00	.00	.00	615	6.0	.71	.01	.00	.00
11	.00	.00	.00	.00	.00	.00	587	5.5	.68	.01	.00	.00
12	.00	.00	.00	.00	.00	.00	517	5.0	.65	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	429	4.5	.65	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	349	4.0	.62	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	256	3.5	.50	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	188	2.7	.44	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	154	2.2	.36	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	127	1.8	.28	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	97	1.7	.20	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	66	1.7	.10	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	79	1.6	.03	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	78	1.5	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	66	1.4	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	56	1.3	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	48	1.2	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	40	1.2	.02	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	38	1.1	.05	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	37	1.1	.05	.00	.00	.00
29	.00	.00	.00	.00	---	.00	31	1.0	.05	.00	.00	.00
30	.00	.00	.00	.00	---	.00	26	1.0	.04	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	1.0	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	5475.00	178.5	13.73	.05	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	183	5.76	.46	.002	.000	.000
MAX	.00	.00	.00	.00	.00	.00	615	23	1.8	.02	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	1.0	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	10860	354	27	.10	.00	.00

CAL YR 1977 TOTAL 105.51 MEAN .29 MAX 7.0 MIN .00 AC-FT 209
WTR YR 1978 TOTAL 5667.28 MEAN 15.5 MAX 615 MIN .00 AC-FT 11240

05056390 LITTLE COULEE NEAR BRINSMADE, ND

LOCATION.--Lat 48°11'15", long 99°14'34", in SW¼ sec.2, T.154 N., R.67 W., Benson County, Hydrologic Unit 09020201, on right bank 100 ft (30 m) downstream from bridge on township road, 0.5 mi (0.8 km) downstream from Silver Lake, and 4 mi (6 km) east of Brinsmade.

DRAINAGE AREA.--350 mi² (906 km²), of which 160 mi² (414 km²) is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,435 ft (437 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 125 ft³/s (3.54 m³/s) Mar. 28, 1976, gage height, 8.50 ft (2.591 m), backwater from ice; maximum gage height, 9.04 ft (2.755 m) Mar. 26, 1976, backwater from ice; no flow for several months.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.9 ft³/s (0.082 m³/s) Jun. 1, gage height, 5.91 ft (1.801 m), maximum gage height, 7.64 ft (2.329 m) Mar. 31, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.80	.00	1.6	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.75	.00	.61	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.25	.00	.20	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.30	.00	.08	.02	.00	.00
5	.00	.00	.00	.00	.00	.00	1.9	.00	.00	.02	.00	.00
6	.00	.00	.00	.00	.00	.00	1.6	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	1.5	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	1.2	.03	.00	.06	.00	.00
9	.00	.00	.00	.00	.00	.00	.90	.19	.00	.08	.00	.00
10	.00	.00	.00	.00	.00	.00	.50	.17	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.12	.09	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.08	.02	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.10	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.90	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	1.00	10.25	.50	2.49	.18	.00	.00
MEAN	.000	.000	.000	.000	.000	.032	.34	.016	.083	.006	.000	.000
MAX	.00	.00	.00	.00	.00	.90	1.9	.19	1.6	.08	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	2.0	20	1.0	4.9	.4	.00	.00

CAL YR 1977 TOTAL 2.11 MEAN .006 MAX 1.5 MIN .00 AC-FT 4.2
WTR YR 1978 TOTAL 14.42 MEAN .040 MAX 1.9 MIN .00 AC-FT 29

05056390 LITTLE COULEE NEAR BRINSMADE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1976, October 1977 to current year.
WATER TEMPERATURES: October 1975 to September 1976, October 1977 to current year.

REMARKS.--No flow Oct. 1 to Mar. 29; April 18, 21, 22, 26 to May 7; May 13 - 31; June 5 to July 3, 6, 7; and July 10 to Sept. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
APR									
05...	1625	1.9	225	--	4.0	--	--	--	--
07...	1405	1.5	420	--	3.0	--	--	--	--
11...	1050	.12	980	7.6	4.0	70	340	190	85
17...	1350	E.01	1250	--	7.5	--	--	--	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
APR									
05...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
11...	30	63	27	1.5	25	180	0	150	7.2
17...	--	--	--	--	--	--	--	--	--

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
APR									
05...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
11...	300	29	[illegible]	19	663	643	.90	.21	.51
17...	--	--	--	--	--	--	--	--	--

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
APR									
11...	.90	0	7	100	150	1	10	1	1

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR												
11...	60	3	50	10	.0	3	0	0	320	1.0	20	.00

E - Estimated.

05056390 LITTLE COULEE NEAR BRINSMADE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							225	---				
2							221	---				
3							---	---				
4							222	---				
5							225	---				
6							220	---				
7							460	---				
8							---	1650				
9							690	1740				
10							790	2000				
11							840	2000				
12							1000	2010				
13							1010	---				
14							1100	---				
15							1150	---				
16							1130	---				
17							1220	---				
18							---	---				
19							1200	---				
20							1300	---				
21							---	---				
22							---	---				
23							1350	---				
24							1400	---				
25							1430	---				
26							---	---				
27							---	---				
28							---	---				
29							---	---				
30							---	---				
31							---	---				
MEAN							859	1890				

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							4.0	---				
2							1.0	---				
3							.5	---				
4							2.0	---				
5							4.5	---				
6							7.0	---				
7							5.0	---				
8							6.0	10.0				
9							8.0	15.0				
10							7.0	21.5				
11							6.0	19.0				
12							2.5	12.0				
13							4.0	---				
14							12.0	---				
15							8.0	---				
16							12.0	---				
17							9.0	---				
18							---	---				
19							5.0	---				
20							15.0	---				
21							---	---				
22							---	---				
23							9.0	---				
24							13.0	---				
25							9.0	---				
26							---	---				
27							---	---				
28							---	---				
29							---	---				
30							---	---				
31							---	---				
MEAN							7.0	15.5				

05056400 BIG COULEE NEAR CHURCHS FERRY, ND

LOCATION.--Lat 48°10'40", long 99°13'15", in NW¼NW¼ sec.12, T.154 N., R.67 W., Benson County, Hydrologic Unit 09020201, on right bank on downstream side of bridge on U.S. Highway 281, 1 mi (1.6 km) downstream from Little Coulee, and 6 mi (10 km) south of Churchs Ferry.

DRAINAGE AREA.--2,510 mi² (6,500 km²), approximately, of which about 690 mi² (1,790 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1960, published as Mauvais Coulee near Churchs Ferry.

GAGE.--Water-stage recorder. Datum of gage is 1,432.65 ft (436.672 m) National Geodetic Vertical Datum of 1929. Prior to June 21, 1950, reference marks, and June 21, 1950, to July 17, 1956, nonrecording gage at former bridge on U.S. Highway 281, 0.1 mi (0.2 km) upstream at datum 0.70 ft (0.213 km) higher.

REMARKS.--Records fair. Flow affected by many lakes on the mainstem and tributaries.

AVERAGE DISCHARGE.--28 years, 37.3 ft³/s (1.056 m³/s), 27,000 acre-ft/yr (33.3 hm³/yr); median of yearly mean discharges, 7.8 ft³/s (0.22 m³/s), 5,700 acre-ft/yr (7.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) June 10, 1974; gage height, 7.06 ft (2.152 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 156 ft³/s (4.42 m³/s) Jun. 1, gage height, 4.10 ft (1.250 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.05	.00	.00	.00	.00	45	127	146	85	20	7.7
2	.03	.05	.00	.00	.00	.00	35	122	129	82	19	6.8
3	.03	.05	.00	.00	.00	.00	20	119	124	80	20	7.1
4	.03	.05	.00	.00	.00	.00	15	108	124	82	18	6.8
5	.04	.05	.00	.00	.00	.00	8.5	114	121	85	16	6.8
6	.04	.05	.00	.00	.00	.00	50	121	114	82	15	6.0
7	.04	.05	.00	.00	.00	.00	34	119	130	81	14	6.5
8	.04	.05	.00	.00	.00	.00	26	129	119	80	14	6.8
9	.04	.05	.00	.00	.00	.00	50	132	116	80	15	5.0
10	.04	.05	.00	.00	.00	.00	40	124	102	79	14	4.6
11	.04	.05	.00	.00	.00	.00	26	124	108	76	12	5.2
12	.04	.05	.00	.00	.00	.00	20	129	114	85	11	8.1
13	.04	.05	.00	.00	.00	.00	26	129	114	97	12	7.1
14	.04	.05	.00	.00	.00	.00	63	122	111	102	11	5.4
15	.04	.05	.00	.00	.00	.00	90	119	111	99	11	5.0
16	.04	.06	.00	.00	.00	.00	110	114	108	93	11	6.2
17	.04	.06	.00	.00	.00	.00	118	113	97	85	11	5.2
18	.04	.06	.00	.00	.00	.00	119	118	100	80	9.2	5.4
19	.04	.06	.00	.00	.00	.00	148	122	85	81	8.8	5.4
20	.04	.05	.00	.00	.00	.00	143	126	97	79	8.8	4.8
21	.04	.05	.00	.00	.00	.00	129	119	102	71	6.8	5.2
22	.04	.04	.00	.00	.00	.00	127	114	100	65	8.8	5.0
23	.04	.04	.00	.00	.00	.00	129	116	96	60	9.2	3.9
24	.04	.03	.00	.00	.00	.00	135	114	96	52	8.8	3.1
25	.04	.03	.00	.00	.00	.00	135	116	94	47	7.4	3.9
26	.04	.02	.00	.00	.00	.00	127	124	100	46	11	3.5
27	.04	.02	.00	.00	.00	.00	132	121	108	45	11	2.9
28	.05	.01	.00	.00	.00	.00	132	119	97	32	9.9	4.5
29	.05	.01	.00	.00	---	1.0	132	118	94	34	9.6	4.1
30	.05	.00	.00	.00	---	25	135	116	87	28	9.6	3.9
31	.05	---	.00	.00	---	85	---	124	---	23	9.2	---
TOTAL	1.23	1.29	.00	.00	.00	111.00	2499.5	3732	3244	2196	372.1	161.9
MEAN	.040	.043	.000	.000	.000	3.58	83.3	120	108	70.8	12.0	5.40
MAX	.05	.06	.00	.00	.00	85	148	132	146	102	20	8.1
MIN	.02	.00	.00	.00	.00	.00	8.5	108	85	23	6.8	2.9
AC-FT	2.4	2.6	.00	.00	.00	220	4960	7400	6430	4360	738	321

CAL YR 1977 TOTAL 1081.16 MEAN 2.96 MAX 50 MIN .00 AC-FT 2140
WTR YR 1978 TOTAL 12319.02 MEAN 33.8 MAX 148 MIN .00 AC-FT 24430

05056400 BIG COULEE NEAR CHURCHS FERRY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
19...	1640	.01	1400	8.5	11.5	23	340	48	76
20...	0900	.04	2000	--	7.5	--	--	--	--
NOV									
16...	1450	.06	1500	8.6	2.0	12	360	3	83
APR									
05...	1720	4.1	940	--	1.0	--	--	--	--
07...	1500	48	460	--	1.0	--	--	--	--
11...	1305	24	650	7.8	3.5	70	200	92	48
17...	1315	119	660	--	6.0	--	--	--	--
MAY									
16...	1415	120	675	8.5	17.0	60	250	82	48
JUN									
07...	1300	136	710	7.9	16.0	60	230	49	54
JUL									
11...	1430	75	750	8.2	22.0	55	270	74	59
AUG									
22...	1245	8.1	1000	8.1	16.5	40	370	93	78
SEP									
14...	1120	[illegible]	955	8.1	14.0	40	370	87	79

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
19...	37	180	52	4.2	18	350	4	290	1.8
20...	--	--	--	--	--	--	--	--	--
NOV									
16...	38	210	55	4.8	6.0	440	0	360	1.8
APR									
05...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
11...	19	46	32	1.4	18	130	0	110	3.3
17...	--	--	--	--	--	--	--	--	--
MAY									
16...	31	45	27	1.2	16	200	1	170	1.0
JUN									
07...	23	48	29	1.4	20	220	0	180	4.4
JUL									
11...	30	47	26	1.2	20	240	0	200	2.4
AUG									
22...	43	66	26	1.5	28	340	0	280	4.3
SEP									
14...	41	67	27	1.5	25	340	0	280	4.3

05056400 BIG COULEE NEAR CHURCHS FERRY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT									
19...	370	48	.2	8.1	902	914	1.23	.02	.02
20...	--	--	--	--	--	--	--	--	--
NOV									
16...	360	45	.2	15	996	975	1.35	.16	.02
APR									
05...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
11...	170	14	.1	17	402	398	.55	26.1	2.1
17...	--	--	--	--	--	--	--	--	--
MAY									
16...	160	18	.1	15	439	434	.60	142	.28
JUN									
07...	130	18	.1	23	539	428	.73	198	.84
JUL									
11...	130	19	.1	28	491	456	.67	99.7	.97
AUG									
22...	220	20	.2	35	699	669	.95	15.3	.66
SEP									
14...	210	28	.2	36	684	656	.93	9.60	.49

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
19...	.02	--	--	--	410	--	--	--	--
NOV									
16...	.03	--	--	--	500	--	--	--	--
APR									
11...	.35	0	10	100	90	1	10	1	2
MAY									
16...	.16	--	--	--	100	--	--	--	--
JUN									
07...	.28	--	--	--	110	--	--	--	--
JUL									
11...	.40	--	--	--	110	--	--	--	--
AUG									
22...	.37	--	--	--	170	--	--	--	--
SEP									
14...	.37	--	--	--	140	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR												
11...	50	2	30	80	.0	3	0	0	200	2.0	20	.00

05056500 DEVILS LAKE NEAR DEVILS LAKE, ND

LOCATION.--Lat 48°04'00", long 98°56'07", in SW¼ sec.18, T.153 N., R.64 W., Ramsey County, Hydrologic Unit 09020201, at Lakewood, on east bank of Creel Bay, 4.5 mi (7.2 km) southwest of city of Devils Lake. Creel Bay, which is 0.5 mi (0.8 km) wide, is an arm of Devils Lake and extends 2 mi (3 km) to the north of the lake.

DRAINAGE AREA.--3,130 mi^2 (8,110 km^2), approximately, of which about 1,000 mi^2 (2,600 km^2) is probably noncontributing.

PERIOD OF RECORD.--1867, 1879, 1883, 1887, 1890, 1896 (one gage height for each year), 1901-63 (fragmentary), 1964 to current year.

REVISED RECORDS.--WSP 1913: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.72 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. June 23, 1950, to June 6, 1963, nonrecording gage at present site and datum. See WSP 1913 for history of changes prior to June 23, 1950.

REMARKS.--Elevation at gage frequently affected by wind.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,438.40 ft (438.424 m) in 1867, present datum; minimum observed, 1,400.87 ft (426.985 m) Oct. 24, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--The lake level was about elevation 1,446 ft (441 m) about 1830 and lower thereafter, according to the tree growth noted 1885-89. Reference is Geological Survey monograph, volume XXV, The Glacial History of Lake Agassiz by Warren Upham.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,423.22 ft (433.797 m) Jul. 12; minimum, 1,421.61 ft (433.307 m) Nov. 20.

MONTHEND ELEVATION, IN FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Oct. 31	1,421.84	Jan. 31	*1,421.90	Apr. 30	1,422.56	July 31	1,423.07
Nov. 30	1,421.81	Feb. 28	1,421.92	May 31	1,422.85	Aug. 31	1,422.68
Dec. 31	*1,421.85	Mar. 31	1,422.01	June 30	1,422.84	Sept.30	1,422.44

* Estimated

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND

LOCATION.--Lat 47°26'01", long 98°01'43", in NE¼NE¼SE¼ sec.27, T.146 N., R.58 W., Griggs County, Hydrologic Unit 09020203, on right bank 150 ft (46 m) downstream from county bridge, and 5 mi (8 km) east of Cooperstown.

DRAINAGE AREA.--6,470 mi^2 (16,760 km^2), approximately, of which about 5,200 mi^2 (13,470 km^2) is probably noncontributing, includes 3,800 mi^2 (9,840 km^2) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,271.04 ft (387.413 m) National Geodetic Vertical Datum of 1929, Corps of Engineers benchmark. Prior to Aug. 3, 1950, nonrecording gage at site 150 ft (45.7 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--34 years, 101 ft^3/s (2.860 m^3/s), 73,170 acre-ft/yr (90.2 hm^3/yr); median of yearly mean discharges, 82 ft^3/s (2.32 m^3/s), 59,400 acre-ft/yr (73 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,830 ft^3/s (222 m^3/s) Apr. 17, 1950, gage height, 18.69 ft (5.697 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,460 ft^3/s (41.3 m^3/s) Apr. 12, gage height, 14.13 ft (4.307 m), only peak above base of 200 ft^3/s (5.66 m^3/s); minimum daily, 3.0 ft^3/s (0.085 m^3/s) Mar. 2-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	11	9.0	9.4	5.3	3.3	850	171	60	24	23	7.9
2	9.1	11	9.0	9.4	5.3	3.0	900	157	61	23	21	7.3
3	9.1	11	9.0	9.4	5.3	3.0	850	143	60	23	20	7.6
4	10	11	9.0	9.4	5.6	3.0	850	131	59	22	22	7.6
5	9.4	11	9.0	9.4	6.0	3.0	940	124	63	23	27	6.8
6	8.8	10	9.0	9.4	6.0	3.0	1000	117	65	22	31	6.8
7	11	11	9.0	9.4	6.0	3.0	1050	113	64	19	35	6.2
8	13	14	9.0	9.4	6.0	3.2	1050	112	64	21	34	5.2
9	13	14	9.0	9.4	6.2	3.2	1110	113	64	20	34	4.7
10	15	15	9.0	9.4	6.5	3.5	1250	113	65	18	33	4.7
11	15	15	9.0	9.4	6.8	3.5	1400	112	67	19	31	7.3
12	14	15	9.1	9.4	6.8	3.5	1440	110	66	19	29	33
13	14	15	9.1	9.4	6.8	3.5	1340	105	62	19	27	80
14	13	15	9.1	9.4	6.5	3.5	1090	99	57	19	24	184
15	12	15	9.1	9.1	6.5	3.5	899	96	54	20	30	168
16	11	15	9.1	9.1	5.0	3.5	712	95	55	19	23	115
17	10	15	9.2	8.8	5.0	3.5	584	93	51	19	21	72
18	9.7	15	9.2	8.8	5.0	3.5	519	86	46	17	20	46
19	10	15	9.2	8.8	3.5	7.5	463	78	46	22	24	31
20	10	15	9.2	8.8	3.5	25	412	70	46	18	24	20
21	9.7	15	9.2	8.8	3.5	40	364	64	44	16	18	17
22	8.8	11	9.2	8.8	3.3	49	318	64	40	16	15	14
23	9.7	9.7	9.2	8.8	3.3	65	286	62	37	18	19	12
24	12	7.9	9.2	8.8	3.5	35	265	60	34	22	13	10
25	12	9.0	9.2	7.6	3.5	25	250	60	35	25	11	10
26	12	9.0	9.3	7.6	3.5	75	236	63	37	28	10	9.1
27	12	9.0	9.3	7.6	3.3	225	222	62	33	28	10	7.9
28	12	9.0	9.4	5.3	3.3	425	210	58	30	29	10	7.6
29	12	9.0	9.4	5.3	---	500	195	59	28	28	9.7	7.3
30	11	9.0	9.4	5.3	---	550	183	59	25	27	8.2	6.8
31	11	---	9.4	5.3	---	750	---	60	---	24	8.2	---
TOTAL	349.3	366.6	283.5	264.2	140.8	2830.7	21238	2909	1518	667	665.1	922.8
MEAN	11.3	12.2	9.15	8.52	5.03	91.3	708	93.8	50.6	21.5	21.5	30.8
MAX	15	15	9.4	9.4	6.8	750	1440	171	67	29	35	184
MIN	8.8	7.9	9.0	5.3	3.3	3.0	183	58	25	16	8.2	4.7
AC-FT	693	727	562	524	279	5610	42130	5770	3010	1320	1320	1830

CAL YR 1977 TOTAL 5605.57 MEAN 15.4 MAX 95 MIN .01 AC-FT 11120
WTR YR 1978 TOTAL 32155.00 MEAN 88.1 MAX 1440 MIN 3.0 AC-FT 63780

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,170 micromhos Mar. 18, 1967; minimum daily, 255 micromhos Apr. 9, 1971.
WATER TEMPERATURES: Maximum daily, 28.5°C July 18, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,050 micromhos Jan. 25, Feb. 7, 8, and 17; minimum daily, 270 micromhos Mar. 27 and Apr. 1.
WATER TEMPERATURES: Maximum daily, 28.0°C July 5; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT									
04...	1450	10	700	8.1	13.0	25	270	20	65
NOV									
01...	1045	12	800	8.3	8.5	12	320	25	77
DEC									
14...	1335	9.2	960	7.8	.0	10	350	9	79
JAN									
05...	1030	9.4	1000	7.6	.0	9	380	28	88
31...	1620	5.3	1020	7.5	.0	25	430	0	100
FEB									
27...	1630	3.3	1000	7.2	.0	11	420	0	100
MAR									
22...	1200	47	710	--	.0	--	--	--	--
29...	1440	504	375	--	.0	--	--	--	--
31...	1145	730	300	7.1	1.0	80	96	14	23
APR									
04...	1430	845	330	--	.5	--	--	--	--
08...	1445	1050	310	--	4.5	--	--	--	--
MAY									
02...	0945	157	750	8.3	9.0	28	270	0	60
JUN									
05...	1610	63	900	7.3	20.0	13	320	0	73
JUL									
05...	1625	23	950	8.4	27.5	15	330	0	78
AUG									
01...	1705	23	925	8.3	21.0	20	250	0	55
SEP									
06...	1430	6.9	800	8.5	25.0	17	250	0	54

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
04...	27	55	30	1.4	8.6	310	0	250	3.9
NOV									
01...	31	57	27	1.4	7.2	36	0	300	2.9
DEC									
14...	38	80	32	1.9	8.5	420	0	340	11
JAN									
05...	39	71	28	1.6	8.2	430	0	350	17
31...	44	88	30	1.8	8.3	530	0	430	27
FEB									
27...	41	76	28	1.6	7.4	520	0	430	52
MAR									
22...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
31...	9.3	19	29	.8	6.0	100	0	82	13
APR									
04...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
MAY									
02...	29	69	35	1.8	7.9	330	0	270	2.6
JUN									
05...	34	78	34	1.9	7.4	400	0	330	32
JUL									
05...	33	100	39	2.4	8.1	400	18	360	2.8
AUG									
01...	28	95	44	2.6	8.1	390	0	320	3.1
SEP									
06...	27	91	44	2.5	8.7	380	0	310	1.9

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT									
04...	120	14	.2	20	447	464	.61	12.1	.01
NOV									
01...	140	14	.2	16	515	520	.70	16.7	.04
DEC									
14...	160	22	.2	19	608	614	.83	15.1	.08
JAN									
05...	140	18	.2	14	608	591	.83	15.4	.01
31...	140	22	.3	30	696	694	.95	9.96	.05
FEB									
27...	110	22	.2	31	673	644	.92	6.00	.03
MAR									
22...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
31...	50	4.0	.1	12	191	179	.26	376	1.2
APR									
04...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
MAY									
02...	130	13	.2	20	507	492	.69	215	.02
JUN									
05...	130	15	.2	15	543	550	.74	92.4	.02
JUL									
05...	150	17	.2	14	587	616	.80	36.5	.02
AUG									
01...	120	16	.2	23	577	538	.78	35.8	.01
SEP									
06...	110	15	.2	20	526	514	.72	9.80	.04

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT									
04...	.21	10	3	10	120	1	10	0	0
NOV									
01...	.10	--	--	--	140	--	--	--	--
DEC									
14...	.11	--	--	--	180	--	--	--	--
JAN									
05...	.13	--	--	--	160	--	--	--	--
31...	.34	--	--	--	170	--	--	--	--
FEB									
27...	.43	--	--	--	170	--	--	--	--
MAR									
31...	.31	50	2	100	70	1	0	3	3
MAY									
02...	.11	--	--	--	160	--	--	--	--
JUN									
05...	.14	--	--	--	190	--	--	--	--
JUL									
05...	.18	--	--	--	220	--	--	--	--
AUG									
01...	.23	--	--	--	240	--	--	--	--
SEP									
06...	.11	--	--	--	210	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
04...	50	14	50	460	.0	1	4	0	320	.5	10	.00
MAR												
31...	230	--	20	300	.0	2	4	0	130	3.0	10	.00

05057000 SHEYENNE RIVER NEAR COOPERSTOWN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	780	940	940	1000	1010	270	750	875	890	---	825
2	750	---	950	910	1000	1000	280	760	870	890	875	820
3	720	790	950	920	1010	970	290	760	870	895	---	820
4	---	800	910	975	1020	650	300	770	860	905	890	---
5	725	770	900	950	1030	960	310	785	860	900	880	820
6	730	780	---	950	1040	930	330	790	820	900	890	800
7	720	790	910	950	1050	980	280	800	840	---	880	810
8	760	---	910	930	1050	---	340	---	850	910	880	810
9	900	---	---	950	1000	970	380	820	830	900	890	810
10	850	---	800	940	1000	960	395	850	830	910	930	800
11	780	750	---	940	950	940	400	850	830	910	920	800
12	---	760	930	960	1000	960	400	840	825	920	950	780
13	850	870	940	---	1010	970	420	860	825	920	---	640
14	810	800	960	990	990	970	450	865	840	950	980	700
15	790	780	910	900	950	940	480	840	855	960	1000	640
16	770	790	900	1000	1000	910	520	850	855	960	990	630
17	760	---	850	1000	1050	950	560	850	855	900	970	560
18	755	775	---	1010	1000	650	580	860	875	975	970	515
19	840	---	940	980	1000	480	670	850	890	960	950	530
20	910	850	900	990	975	880	600	860	900	960	950	570
21	925	800	850	1000	980	670	620	870	900	960	950	580
22	900	---	850	1000	1000	570	650	860	940	930	940	600
23	880	780	825	1000	990	420	870	880	940	915	910	640
24	845	800	840	1020	990	430	880	890	940	920	880	645
25	800	780	875	1050	---	500	700	890	925	920	860	670
26	840	790	900	1020	975	318	720	880	925	940	845	690
27	790	800	950	1040	1000	270	760	895	900	930	840	690
28	800	810	960	1020	1000	520	740	920	900	910	830	700
29	900	---	970	1010	---	360	750	895	890	910	830	700
30	790	940	950	1010	---	305	750	880	860	900	840	720
31	790	---	925	1000	---	275	---	---	---	880	830	---
MEAN	810	799	907	982	1000	724	510	844	873	924	905	701

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.0	1.0	.0	.0	.0	.0	14.0	17.0	23.0	---	20.0
2	13.0	---	1.0	.0	.0	.0	.0	14.5	17.0	26.0	21.5	21.5
3	12.5	8.0	1.0	.0	.0	.0	---	15.0	18.5	26.0	---	23.5
4	---	7.0	1.0	.0	.0	.5	.5	15.0	18.0	26.5	20.5	---
5	10.5	7.0	.5	.0	.0	.0	1.5	15.0	20.0	28.0	21.0	25.0
6	10.0	8.0	---	.0	.0	.0	4.0	16.0	19.0	26.0	22.0	24.0
7	7.5	8.0	.0	.0	.0	.0	4.0	14.5	19.0	---	22.0	23.5
8	7.0	7.0	.0	.0	.0	---	4.0	---	19.0	23.0	22.0	22.5
9	7.0	5.5	---	.0	.0	1.0	5.5	11.5	19.0	22.0	23.0	23.0
10	6.5	3.0	.0	.0	.0	1.0	4.5	14.5	20.5	21.5	22.0	23.5
11	6.5	3.5	---	.0	.0	.5	4.0	16.0	19.5	22.0	23.0	21.0
12	---	3.5	.0	.0	.0	.5	5.0	15.0	19.5	22.5	23.5	18.5
13	8.0	3.5	.0	---	.0	.5	3.5	15.0	20.5	22.5	---	16.5
14	8.0	2.5	.0	.0	.0	.5	5.0	15.0	23.0	25.5	25.5	15.0
15	6.5	2.5	.0	.0	.0	.5	7.0	17.0	23.5	25.5	23.5	15.0
16	8.0	2.0	.0	.0	.0	.0	7.0	18.0	24.0	23.5	23.0	16.0
17	6.0	---	.0	.0	.0	.0	7.5	19.5	22.0	26.0	22.5	14.0
18	6.5	2.5	---	.0	.0	1.0	7.5	20.0	21.5	27.0	21.0	13.5
19	7.0	---	.0	.0	.0	.5	5.5	19.0	20.5	25.0	21.0	13.0
20	7.0	2.0	.0	.0	.0	.0	6.0	17.0	19.5	24.5	20.5	12.5
21	7.0	1.5	.0	.0	.0	.0	7.0	19.0	19.5	24.0	21.0	12.0
22	6.5	---	.0	.0	.0	.0	7.0	19.0	19.5	23.0	19.0	13.0
23	6.5	.0	.0	.0	.5	.0	7.0	21.5	23.0	23.0	19.0	13.0
24	7.0	1.0	.0	.0	1.0	.0	7.0	22.5	22.5	24.0	20.0	14.0
25	6.5	1.0	.0	.0	---	.0	8.0	23.5	23.0	25.5	22.5	14.5
26	5.5	1.0	.0	.0	.5	.0	10.5	24.0	23.0	25.5	23.0	14.0
27	8.0	1.0	.0	.0	.5	.0	12.0	22.5	23.5	24.0	23.0	14.5
28	8.0	1.0	.0	.0	.5	.0	12.0	22.0	25.0	24.0	22.0	13.0
29	9.0	---	2.0	.0	---	.5	13.5	22.0	24.0	22.0	21.5	12.5
30	11.0	1.0	.0	.0	---	.5	14.5	21.5	23.0	23.0	20.0	12.5
31	10.0	---	.0	.0	---	.5	---	---	---	23.0	20.5	---
MEAN	8.0	3.5	.0	.0	.0	.5	6.0	18.0	21.0	24.0	22.0	17.0

05057200 BALDHILL CREEK NEAR DAZEY, ND

LOCATION.--Lat 47°13'45", long 98°07'28", in NW¼SE¼SW¼ sec.2, T.143 N., R.59 W., Barnes County, Hydrologic Unit 09020203, on left bank 500 ft (150 km) upstream from bridge on county highway, 4.5 mi (7.2 km) northeast of Dazey, and 14 mi (23 km) upstream from mouth.

DRAINAGE AREA.--691 mi² (1,790 km²), of which about 340 mi² (880 km³) is probably noncontributing.

PERIOD OF RECORD.--March 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Prior to Nov. 9, 1956, nonrecording gage 500 ft (150 m) downstream at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--22 years, 14.1 ft³/s (0.399 m³/s), 10,200 acre-ft/yr (12.6 hm³/yr); median of yearly mean discharges, 12 ft³/s (0.34 m³/s), 8,700 acre-ft/yr (10.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,510 ft³/s (71.1 m³/s) Apr. 11, 1969, gage height, 10.90 ft (3.322 m) backwater from ice; maximum gage height, 11.21 ft (3.417 m) Apr. 10, 1969, backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 560 ft³/s (15.9 m³/s) Mar. 30, gage height, 6.93 ft (2.112 m), backwater from ice, only peak above base of 60 ft³/s (1.70 m³/s); maximum gage height, 6.98 ft (2.128 m) Mar. 29, backwater from ice; minimum observed discharge, 0.14 ft³/s (0.004 m³/s) Feb. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	2.7	4.3	1.5	.22	.15	295	16	8.1	1.3	.26	1.0
2	3.5	3.7	4.3	1.5	.22	.15	243	15	7.5	1.4	.34	.92
3	3.0	4.3	4.3	1.5	.22	.15	166	15	6.9	1.6	.47	.82
4	2.5	5.1	4.3	1.2	.22	.15	159	15	6.6	1.3	.77	.63
5	2.3	5.6	4.2	1.2	.22	.15	151	14	5.6	1.2	.97	.51
6	2.4	6.0	4.1	1.2	.22	.15	192	13	4.9	1.2	1.0	.31
7	2.8	5.6	4.0	1.2	.22	.15	169	14	4.3	1.3	1.1	.31
8	3.5	8.1	4.0	1.0	.22	.15	137	18	3.7	1.0	1.0	.31
9	3.7	8.1	4.0	.92	.20	.15	121	17	3.5	1.3	.97	.31
10	3.2	7.8	4.0	.87	.20	.18	104	15	3.3	.97	1.0	.31
11	2.4	6.0	4.0	.87	.20	.18	92	14	2.8	1.3	.97	1.4
12	2.4	5.1	4.0	.77	.18	.20	85	14	2.7	1.3	.87	3.0
13	2.5	4.9	4.0	.72	.16	.20	73	13	2.5	.97	.77	1.8
14	2.7	4.9	3.8	.72	.16	.25	56	13	2.5	.82	.77	1.0
15	3.2	4.9	3.5	.72	.16	.30	49	12	3.2	.87	.81	.82
16	3.5	5.1	3.5	.72	.16	.30	44	12	3.9	.63	.51	.63
17	3.7	4.9	3.5	.72	.16	.30	40	11	3.2	.51	.55	.51
18	3.5	4.3	3.5	.63	.16	.30	38	11	3.0	.51	.55	.43
19	3.7	4.1	3.5	.63	.16	1.0	33	11	2.7	1.2	.63	.31
20	4.1	4.1	3.5	.55	.16	15	31	10	2.4	.82	.72	.31
21	3.7	3.5	3.5	.51	.16	20	29	9.2	2.1	.87	.77	.34
22	3.3	7.2	3.5	.43	.16	30	28	10	1.9	.77	.72	.77
23	4.1	6.0	3.0	.37	.15	25	27	9.6	2.0	.43	.82	.67
24	4.3	4.1	2.5	.37	.15	35	25	8.7	1.8	.37	.97	.59
25	4.1	3.5	2.5	.34	.15	10	24	8.1	1.7	.34	.97	.59
26	4.3	3.3	2.0	.34	.15	100	22	11	1.6	.28	1.0	.59
27	5.1	3.3	2.0	.26	.15	130	21	10	1.6	.22	.92	.67
28	5.4	3.5	1.5	.26	.15	140	20	8.7	1.5	.18	1.0	.72
29	5.4	3.9	1.5	.24	---	395	19	8.1	1.5	.18	.97	.72
30	3.7	4.1	1.5	.24	---	500	17	8.1	1.6	.18	.97	.82
31	3.0	---	1.5	.22	---	450	---	8.4	---	.22	1.0	---
TOTAL	109.0	147.7	103.3	22.72	5.04	1854.56	2510	372.9	100.6	25.54	25.14	22.12
MEAN	3.52	4.92	3.33	.73	.18	59.8	83.7	12.0	3.35	.82	.81	.74
MAX	5.4	8.1	4.3	1.5	.22	500	295	18	8.1	1.6	1.1	3.0
MIN	2.3	2.7	1.5	.22	.15	.15	17	8.1	1.5	.18	.26	.31
AC-FT	216	293	205	45	10.0	3680	4980	740	200	51	50	44

CAL YR 1977 TOTAL 1075.33 MEAN 2.95 MAX 14 MIN .03 AC-FT 2130
WTR YR 1978 TOTAL 5298.62 MEAN 14.5 MAX 500 MIN .15 AC-FT 10510

05057500 LAKE ASHTABULA AT BALDHILL DAM, ND

LOCATION.--Lat 47°02'00", long 98°05'00", in NW¼ sec.18, T.141 N., R.58 W., Barnes County, Hydrologic Unit 09020203, at Baldhill Dam on Sheyenne River, and 8 mi (13 km) northwest of Valley City.

DRAINAGE AREA.--7,470 mi^2 (19,300 km^2), approximately, of which about 5,560 mi^2 (14,400 km^2) is probably noncontributing, including 3,800 mi^2 (9,800 km^2) in closed basins.

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1238: 1950(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earth-fill dam, 1,650 ft (503 m) long; storage began on July 30, 1949; dam completed September 1949. Usable capacity, 69,100 acre-ft (85.2 hm^3) between invert of outlet conduit, elevation, 1,238.0 ft (377.34 m), and normal pool level, elevation, 1,266.0 ft (385.8 m). Dead storage below elevation 1,238.0 ft (377.34 m), 1,500 acre-ft (1.85 hm^3). Maximum pool elevation, 1,273.2 ft (388.07 m), capacity, 116,500 acre-ft (144 hm^3). Low flows are controlled by 2 sluice gates 3 ft (0.914 m) in diameter. The spillway crest is 120 ft (36.6 m) long at elevation 1,252.0 ft (381.61 m), surmounted by 3 taintor gates, each 15 ft (4.572 m) high and 40 ft (12.192 m) long. The reservoir is operated for flood control and to increase low-water flow.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 91,400 acre-ft (113 hm^3) May 14, 1950, elevation, 1,269.46 ft (386.931 m); minimum since reservoir first reached spillway level, 6,660 acre-ft (8.21 hm^3) Aug. 11-14, 1950, elevation, 1,245.13 ft (379.516 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 71,170 acre-ft (87.8 hm^3) Apr. 19, elevation, 1,266.10 ft (385.907 m); minimum, 36,950 acre-ft (45.6 hm^3) Mar. 19, elevation, 1,259.81 ft (383.990 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,263.41	55,730	--
Oct. 31	1,263.39	55,670	-60
Nov. 30	1,263.48	55,940	+270
Dec. 31	1,263.22	55,160	-780
CAL YR 1977	--	--	+1,740
Jan. 31	1,262.51	52,300	-2,860
Feb. 28	1,261.29	46,800	-5,500
Mar. 31	1,263.29	55,370	+8,570
Apr. 30	1,265.88	69,930	+14,560
May 31	1,265.80	69,480	-450
June 30	1,265.70	68,920	-560
July 31	1,265.36	67,020	-1,900
Aug. 31	1,265.06	65,340	-1,680
Sept. 30	1,264.94	64,550	-790
WTR YR 1978	--	--	+8,820

05058000 SHEYENNE RIVER BELOW BALDHILL DAM, ND

LOCATION.--Lat 47°01'50", long 98°05'50", in NW¼ sec.18, T.141 N., R.58 W., Barnes County, Hydrologic Unit 09020204, on right bank 600 ft (180 m) downstream from Baldhill Dam, 8 mi (13 km) northwest of Valley City, and at mile 270.5 (435.2 km).

DRAINAGE AREA.--7,470 mi^2 (19,350 km^2), approximately, of which about 5,560 mi^2 (14,400 km^2) is probably noncontributing, including 3,800 mi^2 (9,840 km^2) in closed basins.

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,200.00 ft (365.760 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, Flow completely regulated by Lake Ashtabula (station 05057500). Records 1955 to 1972 include releases at Baldhill Dam to the fish-rearing ponds of the Fish and Wildlife Service. Small diversions are still made but not published.

AVERAGE DISCHARGE (UNADJUSTED).--29 years, 116 ft^3/s (3.285 m^3/s), 84,040 acre-ft/yr (104 hm^3/yr); median of yearly mean discharges, 88 ft^3/s (2.49 m^3/s), 63,800 acre-ft/yr (79 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,580 ft^3/s (130 m^3/s) Apr. 19, 1969, gage height, 35.47 ft (10.811 m); no flow at times in 1950, 1952-53, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft^3/s (38.8 m^3/s) Apr. 7, gage height, 28.55 ft (8.702 m); minimum daily, 7.6 ft^3/s (0.22 m^3/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	21	46	45	107	127	56	177	77	29	18	18
2	7.6	21	46	45	102	121	187	177	77	28	18	18
3	7.9	21	46	45	106	126	412	177	78	28	23	18
4	7.9	21	46	45	104	126	642	174	79	28	24	18
5	8.0	21	46	45	99	125	782	173	68	25	24	18
6	8.2	21	46	56	101	124	936	173	40	18	23	18
7	8.4	22	46	67	101	123	1190	173	39	18	22	18
8	8.5	21	45	66	108	123	1360	173	39	18	21	18
9	8.5	22	45	68	104	116	1350	173	40	17	21	18
10	8.0	22	45	70	106	164	1350	170	43	17	22	18
11	7.9	22	45	70	103	189	1340	144	44	17	24	18
12	8.2	22	45	70	109	218	1340	129	45	19	23	17
13	8.2	22	45	68	105	220	1340	130	38	19	22	17
14	8.2	33	45	68	108	254	1340	129	31	19	22	17
15	8.2	45	45	67	102	258	1180	125	31	19	20	17
16	8.2	45	45	67	108	258	902	125	31	18	20	17
17	8.5	45	45	67	103	248	678	125	30	17	20	17
18	8.5	44	45	66	99	222	500	125	30	15	20	37
19	8.5	44	45	66	100	223	500	125	30	16	19	68
20	8.5	44	45	65	99	238	500	122	30	17	19	68
21	8.5	45	45	65	104	238	478	126	30	17	19	68
22	8.5	40	45	66	101	119	418	114	30	17	19	68
23	8.8	38	45	65	103	55	416	96	34	17	19	68
24	8.8	37	45	65	100	55	409	82	37	17	19	70
25	16	37	45	64	102	55	404	82	36	17	19	71
26	21	37	45	64	101	55	304	80	35	18	18	71
27	21	37	45	65	105	55	227	80	34	18	18	71
28	21	40	45	64	124	55	206	78	33	18	18	71
29	21	46	45	64	---	55	177	78	33	18	18	71
30	21	46	45	64	---	55	177	78	31	18	18	71
31	21	---	45	80	---	56	---	77	---	18	18	---
TOTAL	340.1	982	1402	1952	2914	4456	21101	3990	1253	595	628	1173
MEAN	11.0	32.7	45.2	63.0	104	144	703	129	41.8	19.2	20.3	39.1
MAX	21	46	46	80	124	258	1360	177	79	29	24	71
MIN	7.6	21	45	45	99	55	56	77	30	15	18	17
AC-FT	675	1950	2780	3870	5780	8840	41850	7910	2490	1180	1250	2330

CAL YR 1977 TOTAL 5275.3 MEAN 14.5 MAX 46 MIN 4.6 AC-FT 10460
WTR YR 1978 TOTAL 40786.1 MEAN 112 MAX 1360 MIN 7.6 AC-FT 80900

05058700 SHEYENNE RIVER AT LISBON, ND

LOCATION.--Lat 46°26'49", long 97°40'44", on line between secs.1 and 2, T.134 N., R.56 W., Ransom County, Hydrologic Unit 09020204, on left bank 150 ft (46 m) downstream from dam at State Fish Hatchery at north edge of city of Lisbon, 3 mi (5 km) upstream from Timber Coulee, and at mile 162.1 (260.8 km).

DRAINAGE AREA.--8,190 mi² (21,210 km²), approximately, of which about 5,700 mi² (14,800 km²) is probably noncontributing, including 3,800 mi² (9,840 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,066.46 ft (325.057 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Lake Ashtabula (station 05057500) 108.5 mi (174.6 km) upstream.

AVERAGE DISCHARGE.--22 years, 145 ft³/s (4.106 m³/s), 105,100 acre-ft/yr (130 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 101,000 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,270 ft³/s (149 m³/s) July 1, 1975, gage height, 19.04 ft (5.803 m); no flow Sept. 19-21, Oct. 23, 24, 1956, Aug. 16, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s (39.9 m³/s) Mar. 23, gage height, 11.73 ft (3.575 m), backwater from ice; minimum daily, 14 ft³/s (0.40 m³/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	22	40	50	65	110	450	259	105	61	19	19
2	26	27	40	50	79	115	440	209	101	55	20	18
3	20	28	40	50	92	110	420	186	101	50	20	17
4	20	28	42	50	92	115	440	191	101	55	22	17
5	16	31	45	50	92	120	480	191	99	50	21	17
6	14	30	45	50	92	140	786	191	96	52	20	17
7	19	30	48	50	92	150	964	199	94	64	20	17
8	22	37	48	50	92	150	973	212	90	132	20	17
9	24	59	50	50	95	140	1120	215	81	138	18	16
10	31	57	50	50	105	140	1300	222	70	79	17	16
11	31	55	50	50	105	140	1380	212	52	55	17	149
12	40	55	50	50	105	140	1390	212	42	45	17	639
13	55	61	50	50	105	150	1370	217	34	34	16	110
14	48	52	50	50	105	160	1370	202	34	34	17	55
15	34	42	50	50	105	170	1370	181	40	28	17	40
16	28	37	50	50	101	220	1370	165	78	26	17	50
17	26	37	50	60	95	270	1320	158	72	25	17	52
18	19	37	50	60	95	270	1050	155	134	24	21	48
19	18	37	50	60	95	360	812	155	168	24	37	37
20	17	37	50	60	95	630	688	148	116	22	50	31
21	17	37	50	60	95	853	615	163	85	24	37	28
22	16	37	50	60	110	1270	594	254	66	24	24	25
23	16	38	50	60	110	1360	600	222	57	24	28	26
24	17	40	50	60	110	1360	512	186	42	27	24	34
25	18	42	50	60	110	1270	466	181	57	30	22	52
26	19	48	50	60	110	880	469	158	52	27	22	57
27	19	48	50	60	110	585	460	123	40	22	21	57
28	19	48	50	62	110	480	431	105	92	22	24	59
29	19	42	50	62	---	474	316	107	101	19	24	61
30	20	40	50	65	---	450	238	110	77	19	20	64
31	20	---	50	65	---	450	---	107	---	18	19	---
TOTAL	742	1219	1498	1714	2767	13232	24194	5596	2377	1309	688	1845
MEAN	23.9	40.6	48.3	55.3	98.8	427	806	181	79.2	42.2	22.2	61.5
MAX	55	61	50	65	110	1360	1390	259	168	138	50	639
MIN	14	22	40	50	65	110	238	105	34	18	16	16
AC-FT	1470	2420	2970	3400	5490	26250	47990	11100	4710	2600	1360	3660

CAL YR 1977 TOTAL 11498.9 MEAN 31.5 MAX 838 MIN 4.6 AC-FT 22810
WTR YR 1978 TOTAL 57181.0 MEAN 157 MAX 1390 MIN 14 AC-FT 113400

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1956 to current year.
WATER TEMPERATURES: August 1956 to current year.
SEDIMENT CONCENTRATIONS: August 1976 to current year.
SEDIMENT LOADS: August 1976 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,450 micromhos Jan. 30, 1962; minimum daily, 243 micromhos Apr. 2, 1960.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 23, 1959; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,840 mg/L May 5, 1977; minimum daily mean, 6 mg/L Feb. 14, 15, 1977.
SEDIMENT LOADS: Maximum daily, 4,160 tons (3,770 megagrams) May 5, 1977; minimum daily, 0.23 tons (0.21 megagrams) Sept. 10, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,200 micromhos Nov. 26; minimum daily, 390 micromhos Mar. 25.
WATER TEMPERATURES: Maximum daily, 29.5°C July 5; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 717 mg/L Sept. 12; minimum daily mean, 8 mg/L Oct. 9, 15, 16.
SEDIMENT LOADS: Maximum daily, 1,510 tons (1,370 megagrams) Apr. 10, 11; minimum daily, 0.52 tons (0.47 megagrams) Oct. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
19...	1610	18	1000	8.3	11.0	17	310	51	68
NOV									
16...	1625	38	1000	--	2.0	9	340	86	77
DEC									
21...	1000	48	1010	7.9	.0	8	360	76	78
JAN									
16...	1630	49	1200	7.8	.0	20	420	66	90
FEB									
16...	1445	95	940	7.8	.5	10	310	19	65
MAR									
21...	1730	894	520	8.2	2.0	45	190	28	44
23...	1100	1360	430	--	.5	--	--	--	--
27...	1930	479	410	8.3	2.0	--	--	--	--
APR									
01...	1450	424	490	--	.5	--	--	--	--
13...	1820	1320	550	--	5.5	--	--	--	--
25...	1000	468	590	8.1	7.0	20	210	40	47
MAY									
23...	0930	219	775	8.2	14.0	10	260	53	57
JUN									
21...	1000	89	760	8.0	21.0	7	260	58	56
JUL									
18...	1610	25	810	8.6	28.5	10	240	74	54
AUG									
18...	0930	23	910	8.2	22.5	9	320	98	72
SEP									
12...	1815	336	400	--	15.0	--	--	--	--
21...	1520	29	795	8.2	16.5	7	280	87	69

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
19...	33	93	39	2.3	12	310	0	250	2.5
NOV									
16...	36	100	38	2.4	11	310	--	250	--
DEC									
21...	41	110	39	2.5	12	350	0	287	7.0
JAN									
16...	47	130	39	2.8	14	430	0	350	11
FEB									
16...	37	100	40	2.5	12	360	0	300	9.1
MAR									
21...	20	44	32	1.4	11	200	0	160	2.0
APR									
01...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
25...	23	45	31	1.3	7.6	210	0	170	2.7
MAY									
23...	28	72	37	2.0	9.5	250	0	210	2.5
JUN									
21...	28	66	35	1.8	9.2	240	0	200	3.8
JUL									
18...	25	62	35	1.8	9.6	200	0	160	.8
AUG									
18...	33	88	37	2.2	11	270	0	220	2.7
SEP									
21...	25	63	32	1.7	11	230	0	190	2.3

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
OCT									
19...	190	55	.3	17	631	621	.86	30.7	.00
NOV									
16...	220	50	.3	11	656	659	.89	67.3	.06
DEC									
21...	230	50	.3	19	684	715	.93	88.6	.54
JAN									
16...	260	55	.4	28	840	841	1.14	111	.96
FEB									
16...	180	30	.2	25	598	630	.81	153	.79
MAR									
21...	100	20	.1	15	346	356	.47	835	.81
23...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
APR									
01...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
25...	110	15	.2	15	369	369	.50	466	.63
MAY									
23...	170	27	.3	6.3	484	494	.66	286	.00
JUN									
21...	140	34	.2	13	462	466	.63	111	.22
JUL									
18...	180	31	.3	21	470	482	.64	31.7	.06
AUG									
18...	210	47	.3	17	612	616	.83	38.0	.93
SEP									
12...	--	--	--	--	--	--	--	--	--
21...	170	36	.2	16	502	505	.68	39.3	.16

DATE	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT								
19...	.03	--	--	--	250	--	--	--
NOV								
16...	.04	--	--	--	260	--	--	--
DEC								
21...	.16	--	--	--	280	--	--	--
JAN								
16...	.25	--	--	--	350	--	--	--
FEB								
16...	.15	--	--	--	240	--	--	--
MAR								
21...	.48	--	--	--	150	--	--	--
27...	--	80	3	100	--	0	2	5
APR								
25...	.10	--	--	--	120	--	--	--
MAY								
23...	.03	--	--	--	190	--	--	--
JUN								
21...	.05	--	--	--	190	--	--	--
JUL								
18...	.04	--	--	--	200	--	--	--
AUG								
18...	.05	--	--	--	270	--	--	--
SEP								
21...	.06	--	--	--	210	--	--	--

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, DISSOLVED (UG/L AS FE)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
MAR										
27...	80	20	190	.2	3	3	2	200	30	.00

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)
MAR								
23...	279	1020	72	94	100	--	--	--
27...	110	142	72	94	100	1	5	17
APR								
01...	86	98	72	93	100	14	39	66
13...	259	923	62	92	100	3	25	84
JUL								
18...	--	--	--	--	--	--	--	--
AUG								
18...	--	--	--	--	--	--	--	--
SEP								
12...	536	486	76	98	100	1	6	30
21...	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
MAR						
23...	--	--	--	--	--	--
27...	26	29	44	70	97	100
APR						
01...	87	90	100	--	--	--
13...	96	98	99	99	100	--
JUL						
18...	--	--	--	--	--	--
AUG						
18...	--	--	--	--	--	--
SEP						
12...	51	58	64	72	76	100
21...	--	--	--	--	--	--

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	900	920	1100	1100	930	900	460	675	850	790	855	895
2	960	925	1100	1100	910	920	530	675	850	800	875	900
3	890	950	1090	1090	970	910	570	675	890	800	840	890
4	920	940	1100	1110	925	900	590	720	875	800	900	845
5	910	960	1100	1100	925	900	590	720	870	780	900	900
6	900	990	1110	1090	950	910	580	720	800	825	900	905
7	880	1000	1090	1120	940	900	650	710	850	850	910	900
8	875	990	1100	1140	950	910	725	725	875	775	920	900
9	900	1000	1090	1150	960	900	680	750	850	745	940	910
10	910	1000	1100	1120	925	925	630	730	840	710	945	920
11	900	990	1050	1140	940	920	570	710	845	690	950	675
12	920	1000	1030	1150	970	875	590	725	850	640	945	610
13	960	1000	1050	1170	940	860	580	740	845	610	950	455
14	950	980	1080	1170	950	870	540	750	845	660	930	475
15	950	875	1080	1190	920	875	580	750	830	675	945	460
16	940	900	1090	1150	930	---	590	750	820	700	930	455
17	975	---	1100	1130	900	---	550	780	830	730	925	425
18	960	---	1000	1120	925	---	540	800	845	710	940	525
19	950	1050	1030	1100	900	---	550	795	800	725	945	645
20	950	---	1080	1090	910	---	570	740	750	730	950	725
21	940	---	1050	1030	920	---	560	790	760	745	950	750
22	950	---	1060	875	910	440	590	790	750	740	955	775
23	925	---	1070	1000	930	410	645	740	750	775	950	750
24	960	---	1090	1000	890	400	570	750	760	800	945	700
25	950	---	1080	975	900	390	590	750	765	800	910	700
26	930	1200	1100	950	910	400	620	725	745	830	925	750
27	925	---	1090	975	920	420	600	750	750	825	900	790
28	950	---	1100	930	900	430	625	760	775	800	910	800
29	920	---	1080	950	---	440	660	750	820	845	900	800
30	920	---	1090	950	---	460	660	790	825	855	895	790
31	900	---	1090	940	---	440	---	845	---	850	890	---
MEAN	930	982	1080	1070	927	708	593	746	817	762	922	736

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	10.5	.0	.0	.0	.0	.0	14.0	18.0	25.5	23.0	25.5
2	15.0	9.5	.0	.0	.0	.0	.5	15.0	19.0	27.0	22.0	24.0
3	13.5	9.0	.0	.0	.0	.0	1.0	15.5	20.0	27.5	23.5	26.0
4	13.5	8.5	.0	.0	.0	.0	1.5	15.0	20.0	26.0	23.0	25.5
5	12.0	8.0	.0	.0	.0	.0	1.0	15.5	22.0	29.5	21.5	27.0
6	11.5	9.0	.0	.0	.0	.0	3.5	16.0	19.0	26.0	23.5	25.0
7	9.5	10.0	.0	.0	.0	.0	1.5	14.0	18.5	25.0	27.5	24.0
8	8.0	7.0	.0	.0	.0	.0	1.0	12.0	19.5	22.0	25.0	25.0
9	9.0	4.0	.0	.0	.0	.0	5.5	14.0	22.0	23.0	23.0	25.5
10	8.0	2.0	.0	.0	.0	.0	6.0	15.5	23.0	22.0	25.5	24.5
11	8.0	4.0	.0	.0	.0	.0	7.0	17.0	19.5	23.0	26.0	22.0
12	8.5	2.0	.5	.0	.0	.0	5.0	15.5	23.5	24.5	24.0	20.0
13	9.5	3.0	.5	.0	.0	.0	6.0	16.0	22.0	27.0	25.0	18.0
14	8.5	7.0	.5	.0	.0	.0	5.5	17.5	26.0	29.0	25.0	19.0
15	8.0	7.0	.0	.0	.0	.0	6.0	19.0	24.0	24.5	24.0	18.5
16	9.0	7.0	.0	.0	.0	---	5.5	20.0	24.0	26.0	23.0	18.0
17	9.0	---	.0	.0	.0	---	5.5	20.0	23.0	28.0	24.0	16.0
18	9.0	---	.0	.0	.0	---	5.5	21.0	23.0	29.0	23.0	15.5
19	10.0	1.0	.0	.0	.0	---	4.0	20.0	23.0	27.5	23.5	15.0
20	9.5	---	.0	.0	.0	---	6.0	20.5	21.0	26.0	24.0	15.0
21	9.0	---	.0	.0	.0	---	5.0	20.5	22.5	25.0	25.0	16.0
22	9.0	---	.0	.0	.0	.0	5.0	20.5	21.5	23.5	21.5	16.5
23	8.5	---	.0	.0	.0	.0	7.0	21.5	24.5	26.0	22.0	15.0
24	10.0	---	.0	.0	.0	.0	7.0	23.0	22.0	27.0	22.5	15.5
25	10.5	---	.0	.0	.0	1.0	9.0	23.0	23.0	26.5	24.0	16.5
26	10.0	.0	.0	.0	.0	.0	11.0	24.0	23.0	27.0	23.5	15.0
27	10.0	---	.0	.0	.0	1.0	11.0	22.0	24.0	25.5	25.5	16.0
28	10.0	---	.0	.0	.0	1.0	12.0	21.0	23.0	25.5	23.0	15.5
29	10.5	---	.0	.0	---	1.0	12.0	21.0	25.0	23.5	23.5	14.5
30	12.0	---	.0	.0	---	2.0	14.0	21.0	25.0	25.5	22.0	15.0
31	11.5	---	.0	.0	---	1.5	---	19.5	---	26.0	23.0	---
MEAN	10.0	6.0	.0	.0	.0	.5	5.5	18.5	22.0	26.0	23.5	19.5

05058700 SHEYENNE RIVER AT LISBON, ND--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	22	2.0	22	1.3	23	2.5	19	2.6	24	4.2	29	8.6
2	18	1.3	16	1.2	20	2.2	19	2.6	26	5.5	33	10
3	14	.76	15	1.1	20	2.2	19	2.6	29	7.2	28	7.1
4	17	.92	14	1.1	20	2.3	19	2.6	30	7.5	24	7.5
5	14	.60	17	1.4	21	2.6	18	2.4	31	7.7	32	10
6	14	.53	18	1.5	21	2.6	16	2.2	32	7.9	41	15
7	14	.72	18	1.5	20	2.6	15	2.0	41	10	38	15
8	9	.53	28	2.8	21	2.7	15	2.0	47	12	34	14
9	8	.52	42	6.7	36	4.9	15	2.0	60	15	29	11
10	9	.75	20	3.1	34	4.6	15	2.0	58	15	26	9.8
11	10	.84	15	2.2	30	4.1	16	2.2	25	7.1	25	9.5
12	12	1.3	16	2.4	30	4.1	16	2.2	22	6.2	28	11
13	10	1.5	21	3.5	30	4.1	16	2.2	22	6.2	31	13
14	10	1.3	18	2.5	30	4.1	17	2.3	22	6.2	33	14
15	8	.73	17	1.9	30	4.1	24	3.2	22	6.2	55	25
16	8	.60	11	1.1	30	4.1	19	2.6	22	6.0	75	45
17	16	1.1	11	1.1	28	3.8	17	2.8	22	5.6	80	58
18	15	.77	12	1.2	26	3.5	16	2.6	22	5.6	75	55
19	12	.58	27	2.7	26	3.5	13	2.1	22	5.6	95	92
20	21	.96	41	4.1	23	3.1	12	1.9	22	5.6	120	204
21	24	1.1	41	4.1	17	2.3	21	3.4	20	5.1	185	426
22	28	1.2	41	4.1	18	2.4	20	3.2	20	5.9	289	991
23	24	1.0	41	4.2	21	2.8	18	2.5	19	5.6	306	1120
24	20	.92	35	3.8	20	2.7	17	2.8	19	5.6	402	1480
25	18	.87	30	3.4	20	2.7	15	2.4	18	5.3	267	916
26	18	.92	29	3.8	19	2.6	16	2.6	23	6.8	130	309
27	19	.97	26	3.4	19	2.6	21	3.4	24	7.1	116	183
28	20	1.0	24	3.1	19	2.6	20	3.3	25	7.4	112	145
29	21	1.1	24	2.7	19	2.6	24	4.0	---	---	108	138
30	21	1.1	24	2.6	19	2.6	28	4.9	---	---	110	134
31	20	1.1	---	---	19	2.6	27	4.7	---	---	96	117
TOTAL	---	29.59	---	79.6	---	96.2	---	84.7	---	201.1	---	6593.5

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	79	96	57	40	32	9.1	52	8.6	26	1.3	16	.62
2	61	72	47	27	30	8.2	48	7.1	31	1.7	15	.73
3	59	67	50	25	32	8.7	45	6.1	30	1.6	15	.69
4	49	58	48	25	32	8.7	46	6.8	29	1.7	15	.69
5	46	60	45	23	30	8.0	46	6.2	27	1.5	17	.78
6	157	333	45	23	28	7.3	46	6.5	20	1.1	18	.83
7	270	703	52	28	27	6.9	47	8.1	20	1.1	18	.83
8	325	854	50	29	26	6.3	64	23	21	1.1	16	.73
9	380	1150	44	26	28	6.1	62	23	20	.97	16	.69
10	429	1510	41	25	28	5.3	52	11	20	.92	16	.69
11	406	1510	40	23	21	2.9	46	6.8	19	.87	73	157
12	345	1290	45	26	16	1.8	46	5.6	15	.69	717	1350
13	294	1090	47	28	18	1.7	44	4.0	15	.65	208	62
14	260	962	44	24	21	1.9	38	3.5	17	.78	61	9.1
15	233	862	43	21	21	2.3	37	2.8	23	1.1	60	6.5
16	219	810	41	18	50	11	32	2.2	20	.92	75	10
17	195	695	44	19	38	6.6	29	2.0	20	.92	83	12
18	142	403	46	19	41	15	18	1.2	19	1.1	91	12
19	107	235	49	21	70	32	16	1.0	20	2.8	89	8.9
20	71	132	46	18	98	29	15	.89	30	4.1	60	5.0
21	65	108	46	20	57	13	16	1.0	19	1.9	43	3.3
22	60	96	53	36	49	8.7	18	1.2	20	1.3	33	2.2
23	59	96	50	30	42	6.5	14	.91	25	1.9	37	2.6
24	51	71	45	23	32	3.6	22	1.6	20	1.3	43	3.9
25	50	63	45	22	41	6.8	22	1.8	20	1.2	41	5.8
26	50	63	40	17	57	8.0	21	1.5	20	1.2	28	4.3
27	50	62	40	13	55	5.9	25	1.5	18	1.0	28	4.3
28	60	70	40	11	50	12	26	1.5	18	1.2	29	4.6
29	55	47	35	10	62	17	23	1.2	18	1.2	33	5.4
30	58	37	32	9.5	57	12	23	1.2	17	.92	35	6.0
31	---	---	32	9.2	---	---	25	1.2	13	.67	---	---
TOTAL	---	13605	---	688.7	---	272.3	---	151.00	---	39.91	---	1682.38

TOTAL LOAD FOR YEAR: 23523.98 TONS.

05059000 SHEYENNE RIVER NEAR KINDRED, ND

LOCATION.--Lat 46°37'35", long 97°00'05", in NE¼NW¼ sec.5, T.136 N., R.50 W., Richland County, Hydrologic Unit 09020204, on right bank 25 ft (8 m) downstream from Burlington Northern Railway bridge, 1.5 mi (2.4 km) southeast of Kindred, and at mile 68.1 (109.6 km).

DRAINAGE AREA.--8,800 mi² (22,800 km²), approximately, of which about 5,780 mi² (14,970 km²) is probably noncontributing, including 3,800 mi² (9,840 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 925.55 ft (282.108 m) National Geodetic Vertical Datum of 1929. July 1949 to Sept. 30, 1962, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated to a large degree by Lake Ashtabula (station 05057500) 202 mi (325 km) upstream and several small reservoirs.

AVERAGE DISCHARGE.--29 years, 191 ft³/s (5.409 m³/s), 138,400 acre-ft/yr (171 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 109,000 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s (133 m³/s) Apr. 15, 1969, gage height, 21.03 ft (6.410 m); maximum gage height, 21.66 ft (6.602 m) July 6, 1975; minimum daily discharge, 13 ft³/s (0.37 m³/s) Nov. 13, 1955, Aug. 22-24, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Spring flood in 1947 or 1948 reached a stage of 22.1 ft (6.74 m), from floodmarks, discharge about 3,600 ft³/s (102 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s (39.9 m³/s) Mar. 28, gage height, 16.43 ft (5.008 m), backwater from ice; minimum daily, 26 ft³/s (0.74 m³/s) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	54	62	55	65	110	1000	451	168	140	50	45
2	60	54	62	55	65	110	900	369	166	172	50	45
3	60	54	60	58	70	105	800	352	164	162	45	45
4	60	54	58	55	75	105	700	328	160	136	36	41
5	60	54	54	52	80	105	570	295	156	124	36	38
6	60	55	50	50	90	105	540	268	154	115	36	38
7	62	58	48	50	100	105	500	261	154	108	32	34
8	65	63	51	45	100	105	500	280	154	108	30	31
9	65	69	52	45	100	105	869	292	150	106	28	29
10	65	70	53	45	100	110	974	295	148	111	27	27
11	62	63	53	50	100	115	1030	295	144	134	26	27
12	61	54	54	50	100	115	1200	290	138	166	34	40
13	59	69	54	50	100	118	1250	297	132	140	36	71
14	57	72	54	50	110	120	1300	292	124	111	36	576
15	57	71	55	50	110	135	1310	283	117	95	36	665
16	57	70	56	50	110	160	1320	273	115	88	36	352
17	59	73	58	50	110	180	1310	271	120	80	41	200
18	60	72	62	50	110	200	1310	247	132	75	47	162
19	60	69	64	50	110	210	1300	247	142	70	45	148
20	59	40	67	50	110	230	1180	240	140	66	44	154
21	58	45	68	50	110	260	954	233	156	68	42	148
22	55	50	69	53	114	300	783	233	192	65	41	126
23	54	53	70	56	114	550	688	231	176	62	52	110
24	52	55	68	56	114	610	652	235	154	59	59	94
25	51	56	64	56	114	940	794	299	144	57	60	81
26	51	58	62	60	114	1170	587	290	138	55	59	74
27	51	60	60	60	114	1350	535	254	132	53	56	74
28	51	61	59	60	113	1400	515	238	120	54	50	72
29	51	62	58	60	---	1360	511	226	117	55	47	78
30	51	62	56	60	---	1200	506	196	120	55	43	81
31	53	---	55	60	---	1100	---	174	---	52	45	---
TOTAL	1786	1800	1816	1641	2822	12888	26388	8535	4327	2942	1305	3706
MEAN	57.6	60.0	58.6	52.9	101	416	880	275	144	94.9	42.1	124
MAX	65	73	70	60	114	1400	1320	451	192	172	60	665
MIN	51	40	48	45	65	105	500	174	115	52	26	27
AC-FT	3540	3570	3600	3250	5600	25560	52340	16930	8580	5840	2590	7350

CAL YR 1977 TOTAL 22296 MEAN 61.1 MAX 479 MIN 14 AC-FT 44220
WTR YR 1978 TOTAL 69956 MEAN 192 MAX 1400 MIN 26 AC-FT 138800

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued
National stream-quality accounting network station

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1976 to current year.
WATER TEMPERATURES: November 1970 to September 1975, April 1976 to current year.
SEDIMENT CONCENTRATIONS: August 1976 to current year.
SEDIMENT LOADS: August 1976 to current year

INSTRUMENTATION.--Water-quality monitor since September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,180 micromhos July 16, 1977; minimum, 303 micromhos Sept. 14, 1978.
WATER TEMPERATURES: Maximum, 30.5°C July 18, 19, 1977; minimum, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,970 mg/L May 5, 1977; minimum daily mean, 6 mg/L on several days in 1977.
SEDIMENT LOADS: Maximum daily, 1,960 tons (1,780 megagrams) Apr. 13, 1978; minimum daily, 0.62 tons (0.56 megagrams) Oct. 24, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,130 micromhos Jan. 24-28; minimum, 303 micromhos Sept. 14.
WATER TEMPERATURES: Maximum, 28.5°C July 17, 18; minimum, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 586 mg/L Apr. 12; minimum daily mean, 11 mg/L Nov. 2-7.
SEDIMENT LOADS: Maximum daily, 1,960 tons (1,780 megagrams) Apr. 13; minimum daily, 1.3 tons (1.2 megagrams) Nov. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)
OCT											
18...	1210	--	60	910	8.3	7.5	6	11.4	97	3.2	120
NOV											
30...	1040	--	61	1050	7.7	.0	9	7.0	50	1.4	2000
DEC											
20...	1510	--	85	1025	8.0	.5	8	7.4	53	1.8	3800
JAN											
24...	1245	--	56	1110	7.5	.5	9	5.2	37	1.2	240
FEB											
27...	1605	--	114	950	--	.0	--	--	--	--	--
28...	1500	--	110	905	7.6	.0	12	7.8	55	1.7	1100
MAR											
07...	1130	105	--	960	7.7	.0	11	8.1	57	1.6	--
15...	1400	135	--	900	7.7	.5	8	8.0	57	1.8	--
22...	1430	--	300	750	7.8	1.5	33	9.0	71	--	--
24...	1245	--	634	520	8.3	1.0	--	10.6	77	--	K1700
29...	1130	--	1350	390	8.2	1.5	50	11.4	82	5.6	650
APR											
05...	1150	--	576	525	8.2	1.5	40	10.8	78	3.2	--
12...	1205	--	1200	660	8.4	5.5	27	8.4	68	4.8	--
20...	1215	--	1200	580	8.5	5.5	27	10.0	81	--	--
2[illegible]...	1100	--	600	615	8.1	10.5	35	8.0	74	3.4	1600
MAY											
02...	1220	335	--	705	8.2	13.0	13	9.8	100	3.0	--
09...	1635	--	294	750	8.4	14.0	23	9.8	97	4.8	--
17...	1440	271	--	760	8.0	18.5	9	--	--	3.5	--
24...	1220	--	223	855	8.2	21.5	10	8.7	101	2.9	K45
31...	1130	--	170	830	8.4	18.5	6	8.4	94	2.6	--
JUN											
07...	1215	--	150	850	8.3	18.0	9	8.0	87	1.5	--
13...	1130	128	--	945	8.5	19.5	9	7.6	85	2.1	--
22...	1125	192	--	950	8.4	19.5	8	8.1	91	4.6	--
28...	1035	--	121	810	8.3	23.5	8	7.5	93	3.9	K680
JUL											
06...	1130	115	--	820	8.3	26.0	9	--	--	--	--
13...	1130	--	40	980	8.3	21.5	14	--	--	3.5	--
19...	1345	70	--	890	8.5	25.0	10	5.0	62	4.0	--
26...	0920	--	56	800	8.3	24.0	10	6.6	82	--	275
AUG											
03...	0900	45	--	850	8.4	18.0	30	6.8	74	--	--
09...	1200	29	--	855	8.3	22.0	7	7.0	8	8.4	--
16...	1130	--	37	840	8.4	21.0	9	7.9	91	3.0	--
22...	1515	--	41	855	8.3	22.0	6	--	--	2.7	--
30...	1205	--	44	950	8.5	20.0	10	7.6	85	3.4	375
SEP											
06...	1200	38	--	930	8.3	25.5	7	6.5	81	7.1	--
12...	1430	--	39	850	8.0	21.0	--	--	--	--	--
13...	0850	75	--	810	8.1	17.0	4	7.0	71	1.2	--
14...	1000	--	775	350	7.8	17.0	--	--	--	--	--
15...	0950	648	--	400	7.8	17.0	--	--	--	--	--
19...	1400	--	140	600	8.0	14.0	40	8.8	--	2.0	--
26...	1235	--	73	615	7.9	15.0	25	8.6	--	1.2	K7600

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)
OCT											
18...	92	--	330	79	84	30	76	33	1.8	8.1	310
NOV											
30...	30	--	370	83	89	36	91	34	2.1	8.9	350
DEC											
20...	1500	--	370	88	89	37	95	35	2.1	9.5	350
JAN											
24...	44	--	410	78	95	41	110	36	2.4	10	400
FEB											
27...	--	--	--	--	--	--	--	--	--	--	--
28...	160	190	330	37	72	37	92	37	2.2	11	360
MAR											
07...	--	--	340	37	77	36	89	35	2.1	11	370
15...	--	--	310	28	70	34	88	37	2.2	11	350
22...	--	--	280	36	65	29	70	34	1.8	13	300
24...	110	2600	--	--	--	--	--	--	--	--	210
29...	<1	K2900	140	13	33	13	26	28	1.0	7.6	150
APR											
05...	--	--	220	60	60	16	29	22	.9	6.1	190
12...	--	--	240	29	54	26	63	35	1.8	11	260
20...	--	--	210	19	47	22	49	33	1.5	8.8	230
26...	2700	335	240	36	56	24	49	30	1.4	8.0	250
MAY											
02...	--	--	250	37	59	25	55	31	1.5	8.1	260
09...	--	--	290	51	70	28	52	27	1.3	8.9	290
17...	--	--	290	41	67	29	59	30	1.5	9.5	300
24...	K57	310	330	77	80	32	67	30	1.6	8.6	310
31...	--	--	310	59	76	30	66	31	1.6	8.8	310
JUN											
07...	--	--	310	58	87	23	64	30	1.6	8.8	310
13...	--	--	360	89	88	34	70	29	1.6	8.6	330
22...	--	--	330	71	76	33	83	35	2.0	9.4	310
28...	370	1200	330	82	82	30	61	28	1.5	8.5	300
JUL											
06...	--	--	310	80	76	29	63	30	1.6	8.6	280
13...	--	--	300	100	72	29	60	32	1.7	9.1	240
19...	--	--	310	140	76	28	55	27	1.4	8.7	190
26...	136	265	300	43	76	26	50	26	1.3	7.2	310
AUG											
03...	--	--	340	110	86	30	58	27	1.4	7.9	280
09...	--	--	330	71	84	30	59	27	1.4	8.2	320
16...	--	--	310	49	82	26	59	29	1.5	7.8	320
22...	--	--	320	79	79	29	64	30	1.6	8.1	290
30...	73	100	320	59	80	30	73	32	1.8	8.7	300
SEP											
06...	--	--	330	75	84	29	75	32	1.8	8.7	310
12...	--	--	--	--	--	--	--	--	--	--	300
13...	--	--	300	56	78	26	59	29	1.5	8.0	300
14...	--	--	--	--	--	--	--	--	--	--	110
15...	--	--	--	--	--	--	--	--	--	--	110
19...	--	--	190	46	51	16	36	28	1.1	8.4	180
26...	220	2000	240	56	65	20	38	24	1.1	8.4	230

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
10...	0	250	2.5	180	48	.3	19	600	598	.82	97.2
NOV											
30...	0	290	11	230	53	.3	16	678	698	.92	112
DEC											
20...	0	290	5.6	230	52	.4	20	693	708	.94	159
JAN											
24...	0	330	20	240	52	.4	28	771	777	1.05	117
FEB											
27...	--	--	--	--	--	--	--	--	--	--	--
28...	0	300	14	180	27	.3	25	609	626	.83	181
MAR											
07...	0	300	12	180	29	.2	23	624	631	.85	177
15...	0	290	11	160	32	.3	18	608	590	.83	222
22...	--	250	7.6	140	31	.2	20	506	521	.69	410
24...	0	170	1.7	--	--	--	--	357	--	.49	611
29...	0	120	1.5	67	9.3	.1	10	239	244	.33	871
APR											
05...	0	160	1.9	100	15	.1	12	339	335	.47	532
12...	0	210	1.7	120	17	.2	18	444	441	.60	1440
20...	0	190	1.2	100	13	.1	15	381	372	.52	1230
26...	0	210	3.2	120	18	.2	17	412	419	.56	667
MAY											
02...	0	210	2.6	140	19	.2	17	442	454	.60	400
09...	1	240	1.9	120	22	.2	14	485	459	.66	385
17...	0	250	4.8	150	23	.2	12	511	498	.70	374
24...	0	250	3.1	170	28	.2	12	542	551	.74	326
31...	0	250	2.0	130	26	.2	9.3	516	499	.70	237
JUN											
07...	0	250	2.5	160	30	.2	14	575	540	.78	233
13...	0	270	1.7	180	35	.3	14	585	593	.80	202
22...	0	250	2.0	180	41	.3	14	585	590	.80	303
28...	0	250	2.4	160	28	.3	15	507	533	.69	166
JUL											
06...	0	230	2.2	160	32	.2	14	516	521	.70	160
13...	0	200	1.9	180	39	.3	18	549	534	.75	59.3
19...	8	170	1.0	160	30	.3	26	533	486	.72	101
26...	0	250	2.5	120	29	.3	24	543	487	.74	82.1
AUG											
03...	0	230	1.8	170	31	.2	22	493	543	.67	59.9
09...	0	260	2.6	140	36	.3	23	544	539	.74	42.6
16...	0	260	2.0	140	33	.3	23	519	529	.71	51.8
22...	0	240	2.3	140	43	.3	23	544	530	.74	60.2
30...	11	260	1.6	170	46	.3	21	583	588	.79	69.6
SEP											
06...	0	250	2.5	170	43	.3	22	587	585	.80	60.2
12...	0	250	4.8	--	--	--	--	520	--	.71	34.9
13...	0	250	3.8	130	33	.3	22	516	505	.70	104
14...	0	90	2.8	--	--	--	--	204	--	.28	427
15...	0	90	2.8	--	--	--	--	231	--	.31	404
19...	0	150	2.9	99	14	.2	16	347	332	.47	131
26...	0	190	4.6	120	22	.2	19	402	408	.55	79.2

RED RIVER OF THE NORTH BASIN

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3) (71851)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2) (71856)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT										
18...	.00	.01	.04	.01	.00	.00	.01	.01	.12	.06
NOV										
30...	.15	.17	.75	.01	.00	.00	.16	.17	.23	.12
DEC										
20...	.37	.49	2.2	.01	.01	.03	.38	.50	.25	.28
JAN										
24...	.74	.59	2.6	.01	.01	.03	.75	.60	.20	.21
FEB										
27...	--	--	--	--	--	--	--	--	--	--
28...	.70	.75	3.3	.01	.01	.03	.71	.76	.12	.12
MAR										
07...	.64	.62	2.7	.01	.01	.03	.65	.63	.12	.06
15...	.76	.78	3.5	.02	.01	.03	.78	.79	.11	.03
22...	.83	.87	3.9	.02	.02	.07	.85	.89	.27	.11
24...	--	.76	3.4	--	.03	.10	--	.79	--	.18
29...	.73	.75	3.3	.04	.02	.07	.77	.77	.35	.31
APR										
05...	.64	.58	2.6	.03	.00	.00	.67	.59	.28	.21
12...	.61	.67	3.0	.02	.03	.10	.63	.70	.28	.23
20...	.58	.62	2.7	.04	.03	.10	.62	.65	.29	.14
26...	.58	.59	2.6	.02	.02	.10	.60	.62	.08	.00
MAY										
02...	.34	.42	1.9	.01	.01	.03	.35	.43	.04	.01
09...	.00	.00	.00	.01	.01	.03	.01	.00	.01	.00
17...	.00	.01	.04	.01	.00	.00	.01	.01	.03	.01
24...	.00	.01	.04	.01	.00	.00	.01	.01	.00	.01
31...	.01	.00	.00	.00	.02	.07	.01	.02	.00	.00
JUN										
07...	.01	.02	.09	.01	.00	.00	.02	.02	.01	.01
13...	.00	.00	.00	.01	.01	.03	.01	.01	.01	.00
22...	.00	.01	.04	.01	.01	.03	.01	.02	.01	.01
28...	.04	.00	.00	.01	.01	.03	.05	.01	.03	.01
JUL										
06...	.00	.01	.04	.01	.00	.00	.00	.01	.00	.00
13...	.04	.03	.13	.01	.01	.03	.05	.04	.03	.01
19...	.00	.00	.00	.01	.01	.03	.00	.01	.00	.00
26...	.32	.20	.89	.01	.01	.03	.33	.21	.00	.00
AUG										
03...	.00	.01	.04	.02	.00	.00	.02	.01	.00	.00
09...	.02	.04	.18	.01	.00	.00	.03	.04	.51	.24
16...	.01	.00	.00	.01	.01	.03	.02	.01	.03	.00
22...	.00	.06	.27	.02	.01	.03	.00	.07	.02	.01
30...	.00	.01	.04	.01	.00	.00	.01	.01	.01	.01
SEP										
06...	.01	.03	.13	.01	.00	.00	.02	.03	.49	.15
12...	--	.02	.09	--	.01	.03	--	.03	--	.00
13...	.01	.01	.04	.00	.01	.03	.01	.02	.00	.01
14...	--	.52	2.3	--	.06	.20	--	.58	--	.24
15...	--	.50	2.2	--	.06	.20	--	.56	--	.19
19...	.33	.19	.84	.04	.21	.69	.37	.40	.12	.10
26...	.34	.34	1.5	.03	.03	.10	.37	.37	.00	.05

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT										
18...	.08	.67	.45	.79	.28	.51	.80	3.5	.13	.04
NOV										
30...	.15	.38	.27	.61	.22	.39	.77	3.4	.06	.04
DEC										
20...	.36	.72	.57	.97	.12	.85	1.4	6.0	.17	.13
JAN										
24...	.27	.77	.79	.97	.00	1.0	1.7	7.6	.15	.11
FEB										
28...	.15	.86	.78	.98	.08	.90	1.7	7.5	.18	.12
MAR										
07...	.08	1.1	.94	1.2	.20	1.0	1.9	8.2	.17	.12
15...	.04	.89	.97	1.0	.00	1.0	1.8	7.9	.18	.12
22...	.14	1.0	.50	1.3	.69	.61	2.2	9.5	.33	.23
24...	.23	--	1.3	2.1	.60	1.5	--	--	.33	.16
29...	.40	1.3	.89	1.6	.40	1.2	2.4	11	.44	.11
APR										
05...	.27	1.1	.65	1.5	.65	1.7	2.1	9.2	.21	.09
12...	.30	2.2	.77	2.5	1.5	1.0	3.1	14	.62	.08
20...	.18	1.4	1.4	1.7	.20	1.5	2.3	10	.41	.07
26...	.00	1.3	.76	1.4	.64	.76	2.0	8.9	.29	.08
MAY										
02...	.01	1.3	.66	1.3	.63	.67	1.7	7.3	.26	.09
09...	.00	1.7	.98	1.7	.72	.98	1.7	7.6	.22	.02
17...	.01	.87	.75	.90	.14	.76	.91	4.0	.21	.06
24...	.00	1.2	.47	1.2	.73	.47	1.2	5.4	.23	.03
31...	.00	1.7	.68	1.7	1.0	.68	1.7	7.6	.15	.03
JUN										
07...	.01	.99	.70	1.0	.29	.71	1.0	4.5	.06	.06
13...	.00	.98	.49	.99	.50	.49	1.0	4.4	.16	.05
22...	.01	1.3	.51	1.3	.78	.52	1.3	5.8	.26	.05
28...	.01	.86	.44	.89	.44	.45	.94	4.2	.23	.03
JUL										
06...	.00	1.7	.69	1.7	1.0	.69	1.7	7.5	.22	.04
13...	.01	.97	.46	1.0	.53	.47	1.1	4.6	.18	.04
19...	.00	1.2	.61	1.2	.59	.61	1.2	5.3	.15	.05
26...	.00	.88	.78	.88	.10	.78	1.2	5.4	.16	.05
AUG										
03...	.00	.77	.37	.77	.40	.37	.79	3.5	.11	.04
09...	.31	3.4	.96	3.9	2.7	1.2	3.9	17	.12	.04
16...	.00	.80	.43	.83	.40	.43	.85	3.8	.12	.05

DATE	PHOSPHORUS, ORTHO. TOTAL (MG/L AS P) (70507)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOSPHORUS, HYDRO-LYZABLE DIS. (MG/L AS P) (00672)	PHOSPHORUS, HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOSPHORUS, HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOSPHORUS, ORGANIC TOTAL (MG/L AS P) (00670)	PHOSPHORUS, ORGANIC DIS-SOLVED (MG/L AS P) (00673)	ALUMINUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT										
18...	.04	.00	.00	.04	.10	.04	.00	.00	0	7
NOV										
30...	.00	.03	.09	.01	.03	.04	.03	.00	--	--
DEC										
20...	.11	.08	.25	.03	.14	.11	.00	.02	--	--
JAN										
24...	.06	.10	.31	.00	.06	.09	.03	.02	140	4
FEB										
28...	.06	.06	.18	.05	.13	.11	.00	.01	--	--
MAR										
07...	.06	.08	.25	.01	.14	.09	.00	.03	--	--
15...	.06	.08	.25	.02	.15	.10	.00	.02	--	--
22...	.12	.07	.21	.03	.22	.10	.00	.13	--	--
24...	--	--	--	--	--	--	--	--	--	--
29...	.12	.07	.21	.05	.37	.12	.00	.00	--	--
APR										
05...	.08	.08	.25	.00	.12	.08	.00	.01	--	--
12...	.05	.06	.18	.00	.58	.04	.00	.04	--	--
20...	.09	.06	.18	.01	.33	.07	.00	.00	--	--
26...	.10	.05	.15	.02	.27	.07	.00	.01	1600	5
MAY										
02...	.05	.06	.18	.00	.08	.02	.13	.07	--	--
09...	.03	.01	.03	.02	.21	.03	.00	.00	--	--
17...	.02	.01	.03	.04	.19	.05	.00	.01	--	--
24...	.02	.02	.06	.00	.16	.02	.05	.01	--	--
31...	.02	.05	.15	.00	.11	.02	.02	.01	--	--
JUN										
07...	.19	.05	.15	.00	.05	.05	.00	.01	--	--
13...	.02	.04	.12	.00	.15	.03	.00	.02	--	--
22...	.05	.02	.06	.02	.22	.04	.00	.01	--	--
28...	.05	.02	.06	.02	.17	.04	.01	.00	--	--
JUL										
06...	.02	.02	.06	.00	.15	.02	.05	.02	--	--
13...	.07	.02	.06	.04	.15	.06	.00	.00	--	--
19...	.05	.02	.06	.00	.11	.02	.04	.03	--	--
26...	.05	--	--	--	.13	.05	.00	.00	410	9
AUG										
03...	.13	.04	.12	.00	.08	.04	.03	.00	--	--
09...	.01	.00	.00	.02	.07	.02	.04	.02	--	--
16...	.08	.03	.09	.02	.09	.05	.00	.00	--	--

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT										
18...	--	--	600	--	--	0	450	<10	--	--
NOV										
30...	--	--	--	--	--	--	--	--	--	--
DEC										
20...	--	--	--	--	--	--	--	--	--	--
JAN										
24...	--	4	100	--	100	0	310	1	--	1
APR										
05...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
26...	--	--	200	--	--	0	200	1	--	--
JUL										
06...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
26...	0	10	200	0	300	0	250	2	0	2
AUG										
03...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
18...	5	--	--	<50	--	--	<10	--	--
JAN									
24...	10	--	0	0	--	1	10	--	3
APR									
05...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
26...	0	--	--	6	--	--	22	--	--
JUL									
06...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
26...	0	0	0	0	0	0	7	0	10
AUG									
03...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
AUG									
22...	.01	.86	.57	.88	.30	.58	.88	3.9	.11
30...	.01	.66	.37	.67	.29	.38	.68	3.0	.11
SEP									
06...	.19	1.5	.95	2.0	.90	1.1	2.0	8.9	.13
12...	.00	--	.54	.71	.17	.54	--	--	.13
13...	.01	.75	.42	.75	.32	.43	.76	3.4	.13
14...	.31	--	.58	3.4	2.6	.82	--	--	.67
15...	.24	--	.58	2.3	1.5	.77	--	--	.48
19...	.13	.98	.51	1.1	.49	.61	1.5	6.5	.29
20...	.06	.80	.70	.80	.05	.75	1.2	5.2	.28

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS, HYDRO-LYZABLE DIS. (MG/L AS P) (00672)	PHOS-PHORUS, HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOS-PHORUS, HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOS-PHORUS, ORGANIC TOTAL (MG/L AS P) (00670)	PHOS-PHORUS, ORGANIC DIS-SOLVED (MG/L AS P) (00673)
AUG									
22...	.06	.07	.03	.09	.00	.09	.02	.02	.04
30...	.06	.06	.07	.21	.00	.08	.06	.00	.00
SEP									
06...	.06	.07	.01	.03	.05	.11	.06	.02	.00
12...	.09	--	--	--	--	--	--	--	--
13...	.07	.06	.04	.12	.02	.09	.06	.00	.01
14...	.04	--	--	--	--	--	--	--	--
15...	.07	--	--	--	--	--	--	--	--
19...	.13	.16	.04	.12	.09	.29	.13	.00	.00
26...	.11	.09	.11	.34	.00	.14	.09	.06	.02

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT									
18...	510	--	20	--	--	60	200	120	80
NOV									
30...	0	--	20	--	--	--	160	80	80
DEC									
20...	440	--	30	--	--	--	140	30	110
JAN									
24...	540	--	20	20	6	80	230	--	30
FEB									
28...	840	--	20	--	--	--	260	180	80
MAR									
07...	820	--	10	--	--	--	240	170	70
15...	750	--	20	--	--	--	240	170	70
22...	1500	--	50	--	--	--	520	290	230
29...	3900	--	110	--	--	--	1100	760	340
APR									
05...	3700	--	30	--	--	--	1200	1000	200
12...	10000	--	40	--	--	--	2600	2500	90
20...	5200	--	30	--	--	--	1400	1100	350
26...	3700	--	20	25	--	40	880	800	80
MAY									
02...	2500	--	30	--	--	--	750	710	40
09...	2900	--	20	--	--	--	980	730	250
17...	1700	--	10	--	--	--	780	740	40
24...	2600	2600	40	--	--	--	940	920	20
31...	1300	1300	20	--	--	--	690	660	30
JUN									
07...	1200	--	10	--	--	--	640	560	80
13...	1300	--	10	--	--	--	660	580	80
22...	2500	--	10	--	--	--	1200	1200	10
28...	2100	--	20	--	--	--	990	990	0
JUL									
06...	2300	--	70	--	--	--	840	830	10
13...	1500	1500	40	--	--	--	680	650	30
19...	1100	1100	20	--	--	--	740	640	100
26...	1000	980	20	--	--	60	740	550	190
AUG									
03...	680	660	20	--	--	--	780	720	60
09...	890	870	20	--	--	--	480	340	140
16...	600	360	240	--	--	--	340	220	120
22...	--	--	<10	--	--	--	--	--	130

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)
OCT									
18...	.0	--	--	7	<50	0	--	--	--
JAN									
24...	.0	--	.0	1	[illegible]	1	--	1	1
APR									
26...	.0	--	--	0	10	0	--	--	--
JUL									
06...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
26...	.0	.0	.0	7	0	1	0	1	0

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT									
18...	--	--	--	--	--	--	5.8	--	.00
JAN									
24...	--	0	30	--	20	--	13	.7	.00
FEB									
28...	--	--	--	--	--	10	--	--	--
MAR									
29...	--	--	--	--	--	12	--	--	--
APR									
05...	--	--	--	--	--	2.8	--	--	--
12...	--	--	--	--	--	21	--	--	--
20...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	7.3	--	.00
MAY									
24...	--	--	--	--	--	15	--	--	--
31...	--	--	--	--	--	--	--	--	--
JUN									
07...	--	--	--	--	--	7.4	--	--	--
13...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	8.7	--	--	--
JUL									
06...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
26...	0	0	20	0	20	--	17	1.6	.03

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
AUG							
30...	480	450	30	290	190	100	7.4
SEP							
06...	840	820	20	330	260	70	--
13...	880	850	30	300	230	70	--
19...	3400	3300	140	720	710	10	--
26...	1300	1300	20	340	310	30	7.4

DATE	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)
MAY											
24...	.0	0	.00	.00	.0	.0	0	.00	.1	.01	.1
JUL											
26...	.0	--	.00	.00	--	.0	--	.00	--	.00	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)
MAY											
24...	.00	.0	.00	.0	.01	.0	.00	.00	.0	.00	.0
JUL											
26...	.00	--	.00	--	.00	--	.00	.00	--	.00	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRI-THION, TOTAL (UG/L) (39790)
MAY											
24...	.00	1.2	.00	.0	.00	.0	.00	.0	.00	.0	.00
JUL											
26...	.00	--	.00	--	.00	--	.00	--	.00	--	.00

DATE	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39741)
MAY											
24...	.0	.00	.0	0	0	.00	.0	.03	0	.00	0
JUL											
26...	--	.00	--	0	--	.00	--	.03	--	.00	--

DATE	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39761)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)
MAR											
29...	--	--	231	842	51	65	--	79	93	99	100
APR											
05...	--	--	224	348	46	69	--	90	97	99	100
12...	--	--	586	1900	54	77	--	96	99	100	--
20...	--	--	328	1060	53	76	--	92	98	100	--
26...	--	--	172	279	53	80	100	--	--	--	--
MAY											
24...	.00	.0	--	--	--	--	--	--	--	--	--
JUL											
26...	.00	--	--	--	--	--	--	--	--	--	--
SEP											
06...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	723	1510	63	84	--	96	99	100	--
15...	--	--	438	766	55	72	--	82	91	97	100
19...	--	--	133	50	--	--	--	--	--	--	--
26...	--	--	55	11	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR										
29...	25	86	98	99	99	100	--	--	--	--
APR										
05...	23	68	90	94	95	97	98	99	99	100
12...	34	71	82	91	94	97	99	100	--	--
20...	29	72	87	90	90	92	94	96	97	100
26...	13	72	99	100	--	--	--	--	--	--
SEP										
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	5	22	56	93	98	100	--	--	--	--
15...	4	18	68	96	98	99	99	99	100	--
19...	4	25	81	91	94	96	97	100	--	--
26...	--	--	--	--	--	--	--	--	--	--

RED RIVER OF THE NORTH BASIN

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	986	961	941	930	1060	1060	1090	1080	1100	1070	933	917
2	968	955	942	926	1080	1060	1100	1080	1070	1060	935	924
3	957	927	950	928	1080	1070	1090	1080	1070	1050	937	931
4	948	936	954	945	1090	1080	1100	1090	1060	1040	950	933
5	951	939	968	957	1100	1090	1100	1090	1040	1030	951	934
6	960	948	987	970	1090	1090	1100	1100	1020	1010	958	947
7	956	926	984	983	1080	1080	1100	1090	1020	1010	965	944
8	929	889	995	984	1090	1080	1090	1090	1000	999	958	947
9	866	858	985	941	1080	1060	1100	1090	1000	980	952	921
10	872	856	943	928	1080	1080	1100	1090	1000	991	944	918
11	865	849	950	934	1090	1080	1110	1090	995	983	938	921
12	866	852	957	951	1090	1080	1110	1100	988	982	926	920
13	880	864	964	942	1080	1080	1120	1110	981	975	919	908
14	888	882	965	954	1080	1070	1120	1110	980	974	917	896
15	896	885	973	967	1070	1070	1120	1100	985	973	911	884
16	904	893	979	962	1060	1060	1100	1090	972	966	900	879
17	918	907	981	981	1060	1050	1100	1090	965	954	890	866
18	925	920	982	977	1060	1040	1100	1090	964	953	779	858
19	930	905	984	979	1060	1050	1110	1100	963	952	869	847
20	950	923	992	979	1050	1050	1110	1100	962	951	842	827
21	952	930	1000	987	1050	1040	1110	1100	961	950	822	783
22	943	926	1000	992	1060	1050	1120	1100	960	949	791	716
23	944	927	1000	992	1070	1050	1120	1100	959	926	678	606
24	945	929	1000	991	1070	1060	1130	1110	958	942	555	465
25	947	920	1000	987	1080	1060	1130	1120	952	935	471	385
26	938	911	1010	991	1100	1080	1130	1120	934	918	402	374
27	938	907	1030	1010	1120	1090	1130	1120	928	911	385	368
28	935	918	1050	1030	1120	1120	1130	1120	927	905	390	376
29	936	931	1050	1040	1120	1100	1130	1120	---	---	394	389
30	938	933	1060	1040	1100	1090	1120	1110	---	---	384	375
31	939	918	---	---	1090	1080	1110	1100	---	---	402	388
MONTH	986	849	1060	926	1120	1040	1130	1080	1100	905	965	368

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	428	414	704	694	833	820	800	781	831	813	917	884
2	458	440	726	705	826	808	819	795	867	823	929	901
3	483	471	744	725	837	820	819	795	866	844	936	912
4	506	489	754	746	854	835	813	803	879	863	936	912
5	530	519	757	742	860	828	817	808	887	860	942	918
6	551	526	772	748	863	839	843	823	860	853	948	913
7	570	546	776	768	869	850	865	844	861	833	945	909
8	600	570	767	763	878	863	880	864	869	847	935	911
9	597	588	766	750	892	867	903	880	883	839	920	884
10	624	585	775	755	901	876	939	903	863	836	886	875
11	665	624	776	764	921	905	958	939	867	845	883	871
12	666	657	773	765	936	925	983	957	876	848	861	806
13	656	646	778	762	962	940	1010	983	869	841	831	700
14	647	609	775	759	972	949	1010	977	861	839	745	303
15	616	601	777	768	965	947	996	972	859	848	448	370
16	609	594	773	760	964	925	978	954	857	829	470	452
17	592	581	773	760	940	929	951	935	847	830	507	461
18	606	580	788	775	938	922	932	908	837	821	565	512
19	615	602	798	781	931	909	898	882	833	806	609	568
20	597	563	808	795	930	919	897	865	857	823	627	601
21	584	572	819	805	946	929	882	851	853	825	623	613
22	591	586	829	816	956	944	873	850	861	843	615	590
23	602	593	839	830	948	914	872	866	864	776	616	591
24	612	604	855	841	916	894	849	809	790	761	624	608
25	620	608	855	845	902	880	815	782	870	794	626	616
26	628	612	855	841	877	850	807	781	927	885	624	615
27	670	635	851	837	842	818	822	784	935	881	643	625
28	678	662	846	829	815	801	812	781	964	926	655	644
29	670	657	833	820	820	805	803	797	986	959	683	660
30	690	677	835	804	819	795	812	794	982	908	733	683
31	---	---	839	772	---	---	822	798	923	879	---	---
MONTH	690	414	855	694	972	795	1010	781	986	761	948	303
YEAR	1130	303										

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.0	11.5	10.5	8.5	1.0	.5	.5	.5	1.0	1.0	1.0	.5
2	12.5	11.0	8.5	7.5	1.0	.5	.5	.0	1.0	1.0	1.0	.5
3	12.0	11.0	8.0	7.5	1.0	.5	.5	.0	1.0	1.0	1.0	.5
4	12.5	11.5	7.0	5.5	1.0	1.0	.5	.5	1.0	.5	1.0	.0
5	12.0	10.5	6.5	5.5	1.0	1.0	.5	.5	1.0	.5	1.0	.0
6	11.0	10.5	8.5	7.0	1.0	1.0	.5	.5	1.0	1.0	1.0	.0
7	10.5	8.0	10.5	9.0	1.0	1.0	.5	.5	1.0	1.0	1.0	.0
8	7.5	6.5	10.5	6.5	1.0	1.0	1.0	.5	1.0	.5	1.0	.5
9	8.0	6.5	6.0	.5	1.0	1.0	1.0	.5	1.0	.0	.5	.0
10	8.5	8.0	1.0	.5	1.0	1.0	1.0	.5	1.0	.5	.5	.0
11	8.0	7.0	1.0	.5	1.0	.5	1.0	.5	1.0	.5	1.0	.0
12	8.0	6.5	1.0	1.0	.5	.5	1.0	.5	1.0	.5	1.0	.5
13	9.0	8.0	1.0	.5	.5	.5	1.0	.5	1.0	.5	1.0	.5
14	10.5	9.0	1.0	.5	.5	.5	1.0	.5	1.0	.5	1.0	.5
15	9.5	8.5	.5	.5	.5	.5	1.0	.5	1.0	.5	1.0	.5
16	8.5	8.0	.5	.5	.5	.0	1.0	1.0	1.0	.5	1.0	.5
17	9.0	8.5	.5	.5	.0	.0	1.0	1.0	1.0	.5	1.0	.5
18	9.0	8.0	.5	.5	.5	.0	1.0	1.0	1.0	.5	1.0	.5
19	9.0	8.0	.5	.5	.5	.0	1.0	.5	1.0	.5	1.5	1.0
20	9.0	8.5	1.0	.5	.5	.5	1.0	1.0	1.0	.5	1.5	1.0
21	9.5	8.5	1.0	.5	.5	.0	1.0	1.0	1.0	.5	1.5	1.0
22	7.5	6.5	1.0	.5	.5	.5	1.0	.5	1.0	.5	2.0	1.5
23	6.5	6.0	1.0	1.0	.5	.0	1.0	.0	.5	.0	1.5	1.0
24	8.0	6.0	1.0	1.0	.5	.5	1.0	.5	.5	.5	2.0	1.0
25	8.5	7.5	1.0	.5	.5	.5	1.0	1.0	1.0	.5	1.5	1.5
26	9.5	8.5	1.0	1.0	.5	.5	1.0	1.0	1.0	.0	1.5	1.5
27	10.5	9.0	1.0	.5	.5	.5	1.0	1.0	1.0	.0	1.5	1.5
28	9.0	8.0	1.0	.5	.5	.5	1.0	1.0	1.0	.0	1.5	1.5
29	10.5	8.0	1.0	.5	.5	.5	1.0	.5	---	---	1.5	1.5
30	12.0	10.5	.5	.0	.5	.5	1.0	.5	---	---	2.0	2.0
31	11.5	10.5	---	---	.5	.5	1.0	1.0	---	---	2.0	2.0
MONTH	13.0	6.0	10.5	.0	1.0	.0	1.0	.0	1.0	.0	2.0	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2.0	2.0	13.5	12.0	16.5	15.5	22.5	22.0	22.5	20.5	22.0	20.5
2	1.5	1.5	14.5	12.5	16.5	14.5	24.5	22.0	20.5	19.5	23.5	22.0
3	1.5	1.5	15.5	13.0	17.5	15.0	26.5	23.5	20.0	18.5	23.5	22.0
4	1.5	1.0	16.0	14.0	18.5	16.5	27.0	25.0	20.5	18.0	24.5	23.0
5	2.0	1.5	16.0	14.5	19.5	16.5	28.0	25.5	21.5	20.0	25.5	24.0
6	4.5	2.0	16.5	14.5	20.0	18.0	28.0	26.0	23.5	21.0	26.5	25.0
7	4.5	4.0	16.0	14.0	19.5	17.5	27.0	25.0	25.0	22.5	26.0	25.0
8	4.0	3.5	14.0	12.5	19.5	17.0	25.0	22.0	24.5	23.5	25.0	24.0
9	4.0	3.5	14.5	12.0	20.0	17.0	21.5	20.5	23.5	22.0	24.0	23.0
10	3.5	3.0	16.5	13.5	20.5	19.0	22.0	20.0	24.0	21.5	22.5	21.5
11	4.0	3.0	16.5	15.5	20.0	19.5	22.5	20.5	24.5	23.0	23.5	22.0
12	5.5	4.0	16.5	15.0	20.0	18.0	23.5	21.5	26.5	24.0	22.5	19.0
13	5.5	5.5	15.5	13.5	20.5	19.0	24.5	21.5	26.5	25.5	18.0	16.5
14	6.0	4.5	16.5	14.0	22.5	20.0	26.0	22.5	27.0	26.0	17.0	15.5
15	6.5	5.5	17.0	14.5	22.5	20.5	26.5	24.0	26.0	22.5	17.5	17.0
16	7.0	6.0	18.5	15.5	22.0	20.5	28.0	25.0	22.5	21.0	17.5	16.5
17	7.0	7.0	19.0	16.5	22.0	20.0	28.5	26.0	23.0	21.5	17.0	15.0
18	7.0	6.5	20.0	17.5	21.5	19.0	28.5	26.0	22.0	21.0	15.0	14.0
19	6.5	5.0	20.0	18.5	21.5	20.0	27.5	25.0	21.0	19.5	14.5	13.5
20	6.0	4.5	18.5	16.5	20.5	18.5	24.0	22.0	21.5	20.0	14.0	13.0
21	7.0	5.5	19.0	16.5	20.0	17.5	24.0	22.0	23.5	21.0	13.5	12.5
22	7.5	6.5	19.5	17.5	20.0	19.0	24.0	22.0	23.0	21.0	14.0	12.0
23	7.5	7.5	21.0	18.5	21.5	19.5	23.5	21.0	22.0	20.5	15.0	13.0
24	8.0	7.5	22.0	20.5	23.5	20.0	24.5	22.0	22.0	21.0	15.0	14.0
25	9.0	7.5	23.5	21.0	23.5	22.0	26.5	24.0	24.0	22.0	15.5	13.5
26	10.5	9.0	23.0	22.5	23.5	21.5	26.5	24.5	24.5	23.5	16.0	15.0
27	12.0	10.0	22.0	20.5	24.0	21.0	25.0	22.5	24.5	23.5	16.0	13.5
28	12.5	12.0	20.5	19.5	25.5	22.5	24.0	22.0	23.5	21.5	14.0	12.5
29	13.5	12.0	19.5	18.5	25.5	24.0	24.0	21.5	21.5	20.5	13.5	13.0
30	13.5	12.0	20.0	18.0	25.0	23.0	21.5	20.0	20.5	19.5	13.5	12.0
31	---	---	19.5	18.5	---	---	22.5	20.5	20.5	19.5	---	---
MONTH	13.5	1.0	23.5	12.0	25.5	14.5	28.5	20.0	27.0	18.0	26.5	12.0
YEAR	28.5	.0										

RED RIVER OF THE NORTH BASIN

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	23	3.7	13	1.9	28	4.7	32	4.8	26	4.6	46	14
2	22	3.6	11	1.6	26	4.4	32	4.8	51	9.0	45	13
3	24	3.9	11	1.6	28	4.5	29	4.5	73	14	41	12
4	23	3.7	11	1.6	28	4.4	28	4.2	79	16	36	10
5	22	3.6	11	1.6	26	3.8	25	3.5	65	14	38	11
6	22	3.6	11	1.6	24	3.2	23	3.1	53	13	41	12
7	24	4.0	11	1.7	25	3.2	23	3.1	46	12	36	10
8	29	5.1	12	2.0	46	6.3	23	2.8	38	10	36	10
9	23	4.0	12	2.2	45	6.3	22	2.7	34	9.2	43	12
10	16	2.8	13	2.5	42	6.0	16	1.9	34	9.2	46	14
11	16	2.7	14	2.4	43	6.2	14	1.9	32	8.6	48	15
12	16	2.6	13	1.9	44	6.4	18	2.4	32	8.6	46	14
13	15	2.4	13	2.4	43	6.3	29	3.9	32	8.6	43	14
14	15	2.3	14	2.7	43	6.3	24	3.2	31	9.2	43	14
15	12	1.8	13	2.5	42	6.2	22	3.0	27	8.0	43	16
16	12	1.8	13	2.5	42	6.4	22	3.0	27	8.0	45	19
17	14	2.2	13	2.6	42	6.6	22	3.0	29	8.6	49	24
18	15	2.4	13	2.5	44	7.4	23	3.1	35	10	50	27
19	15	2.4	13	2.4	36	6.2	23	3.1	48	14	53	30
20	15	2.4	12	1.3	29	5.2	23	3.1	62	18	55	34
21	15	2.3	16	1.9	28	5.1	21	2.8	67	20	63	44
22	15	2.2	26	3.5	26	4.8	22	3.1	78	24	81	66
23	14	2.0	28	4.0	29	5.5	25	3.8	90	28	123	183
24	14	2.0	28	4.2	31	5.7	26	3.9	88	27	176	290
25	14	1.9	26	3.9	34	5.9	31	4.7	78	24	228	579
26	14	1.9	26	4.1	38	6.4	56	9.1	63	19	279	881
27	14	1.9	26	4.2	46	7.5	60	9.7	56	17	298	1090
28	14	1.9	26	4.3	42	6.7	46	7.5	50	15	297	1120
29	14	1.9	26	4.4	36	5.6	39	6.3	---	---	246	903
30	14	1.9	28	4.7	34	5.1	31	5.0	---	---	242	784
31	14	2.0	---	---	33	4.9	27	4.4	---	---	240	713
TOTAL	---	82.9	---	80.7	---	173.2	---	125.4	---	386.6	---	6978

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	231	624	169	206	68	31	77	29	53	7.2	40	4.9
2	229	556	153	152	64	29	92	43	52	7.0	45	5.5
3	227	490	151	144	62	27	89	39	48	5.8	45	5.5
4	226	427	148	131	59	25	86	32	44	4.3	45	5.0
5	224	345	148	118	54	23	76	25	52	5.1	41	4.2
6	226	330	148	107	53	22	68	21	54	5.2	51	5.2
7	226	305	148	104	53	22	63	18	45	3.9	66	6.1
8	292	394	176	133	52	22	58	17	32	2.6	62	5.2
9	520	1220	159	125	50	20	49	14	33	2.5	54	4.2
10	580	1530	143	114	50	20	55	16	31	2.3	50	3.6
11	580	1610	140	112	50	19	72	26	31	2.2	48	3.5
12	586	1900	130	102	50	19	81	36	50	4.6	46	5.0
13	580	1960	135	108	50	18	68	26	44	4.3	66	13
14	552	1940	137	108	50	17	67	20	38	3.7	507	945
15	510	1800	140	107	50	16	67	17	44	4.3	493	889
16	488	1740	143	105	50	16	67	16	40	3.9	407	307
17	448	1580	136	100	53	17	67	14	45	5.0	297	160
18	425	1500	125	83	69	25	66	13	46	5.8	197	86
19	413	1450	125	83	73	28	66	12	43	5.2	135	54
20	345	1100	126	82	76	29	65	12	40	4.8	120	53
21	289	744	127	80	86	36	65	12	40	4.5	116	46
22	268	567	130	82	104	54	65	11	40	4.4	99	34
23	234	435	130	81	84	40	64	11	46	6.5	89	26
24	202	356	130	82	80	33	64	10	54	8.6	72	18
25	193	414	155	125	90	35	57	8.8	41	6.6	56	12
26	187	296	169	132	99	37	56	8.3	38	6.1	54	11
27	184	266	153	105	98	35	56	8.0	38	5.7	50	10
28	179	249	104	67	90	29	56	8.2	38	5.1	45	8.7
29	176	243	86	52	73	23	66	9.8	40	5.1	50	11
30	175	239	72	38	67	22	70	10	36	4.2	45	9.8
31	---	---	68	32	---	---	58	8.1	38	4.6	---	---
TOTAL	---	26610	---	3200	---	789	---	551.2	---	151.1	---	2831.4

TOTAL LOAD FOR YEAR: 41959.5 TONS.

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	FEB 28,78	MAY 24,78	JUN 28,78	JUL 26,78	SEP 26,78
TIME	1500	1220	1035	0920	1235
TOTAL CELLS/ML	430	38000	53000	20000	560
DIVERSITY: DIVISION	1.0	1.7	1.6	0.5	1.7
.CLASS	1.0	1.7	1.6	0.5	1.8
..ORDER	1.4	2.2	1.7	0.9	2.5
...FAMILY	3.1	2.7	2.5	2.4	2.7
....GENUS	3.2	3.3	2.8	3.2	2.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	65#	15	--	-	--	-	--	-	--	-
...CHLOROCOCCACEAE										
....CHLOROCOCCUM	--	-	--	-	--	-	970	5	--	-
...COELASTRACEAE										
....COELASTRUM	65#	15	--	-	3800	7	410	2	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	--	-	210	1	--	-
....MICRACTINIUM	--	-	1200	3	5700	11	2000	10	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	2700	7	--	-	--	-	--	-
....CHODATELLA	--	-	*	0	*	0	--	-	--	-
....DICTYOSPHAERIUM	--	-	1800	5	7800	15	1500	7	--	-
....KIRCHNERIELLA	6	2	600	2	--	-	--	-	--	-
....OOCYSTIS	--	-	1900	5	--	-	280	1	--	-
....SELENASTRUM	26	6	450	1	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	7	1
....TREUBARIA	--	-	*	0	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	600	2	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	950	2	3300#	16	--	-
....SCENEDESMUS	13	3	2400	6	3800	7	6800#	33	43	8
....TETRASTRUM	--	-	600	2	--	-	--	-	28	5
..TETRASPORALES										
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	--	-	--	-	760	4	--	-
...TETRASPORACEAE										
....TETRASPORA	--	-	--	-	--	-	550	3	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	*	0	--	-	--	-	110#	20
...PHACOTACEAE										
....PTEROMONAS	--	-	*	0	--	-	--	-	--	-
..CHLOROCOCCALES										
...OOCYSTACEAE										
....GLOEOACTINIUM	--	-	--	-	--	-	1800	9	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	58	14	7600#	20	18000#	33	280	1	110#	20
....STEPHANODISCUS	--	-	--	-	--	-	*	0	7	1
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	6	2	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	*	0	--	-	--	-	--	-
...FRAGILARIACEAE										
....SYNEDRA	19	5	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	6	2	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....CALONEIS	13	3	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	*	0	--	-
....NAVICULA	71#	17	--	-	--	-	--	-	14	3
...NITZSCHIACEAE										
....NITZSCHIA	65#	15	1600	4	*	0	830	4	64	11
...SURIRELLACEAE										
....SURIRELLA	13	3	*	0	--	-	--	-	--	-
.XANTHOPHYCEAE										
..HETEROCOCCALES										
...CHLOROTHECIACEAE										
....OPHIOCYTIUM	--	-	--	-	--	-	*	0	7	1
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	140	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED .

05059000 SHEYENNE RIVER NEAR KINDRED, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	FEB 28,78		MAY 24,78		JUN 28,78		JUL 26,78		SEP 26,78	
TIME	1500		1220		1035		0920		1235	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	11000#	29	3300	6	--	-	--	-
....COCCOCHLORIS	--	-	--	-	9000#	17	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	3600	9	--	-	--	-	140#	25
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	470	1	280	1	14	3
....TRACHELOMONAS	--	-	890	2	*	0	--	-	7	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$) Dry weight	Biomass ($\mu g/m^2$) Ash weight	Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
Feb. 28	35	790	0.000	0.000	0.000	--	Polyethylene strip
Jun. 28	34	5,830	3,700	2.16	0.000	986	Polyethylene strip

DISSOLVED OXYGEN, WATER TEMPERATURE AND pH PROFILE

WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

HOUR	MG/L	DEGREES, C	pH
Feb. 28, 1978			
1200	7.8	0.0	7.6
1500	7.8	.0	7.6
1800	8.0	.0	7.5
2300	7.6	.0	8.0
Mar. 1, 1978			
0400	7.9	.0	7.6
0800	8.0	.0	7.6
1200	8.0	.0	7.5
1215	7.9	.0	7.6
1615	7.8	.0	7.6
May 24, 1978			
1000	7.8	19.5	8.2
1100	7.7	20.0	8.2
1200	7.8	20.0	8.1
1300	7.9	20.5	8.1
1400	8.2	20.5	8.1
1500	8.7	21.0	8.2
1600	8.7	21.5	8.2
1700	8.7	21.5	8.2
1800	8.7	21.5	8.2
1900	8.6	21.5	8.2
2000	8.6	22.0	8.2
2100	8.4	21.5	8.2
2200	8.3	21.5	8.2
2300	8.2	21.5	8.2
2400	8.2	21.5	8.2
May 25, 1978			
0100	8.0	21.5	8.2
0200	7.8	21.5	8.2
0300	7.6	21.0	8.2
0400	7.6	21.0	8.2
0500	7.5	21.0	8.2
0600	7.5	21.0	8.2
0700	7.5	20.0	8.2
0800	7.5	20.5	8.2
0900	7.6	20.5	8.1
1000	7.6	20.5	8.1
Aug. 29, 1978			
1000	7.5	19.0	8.5
1100	7.5	19.0	8.5
1200	7.5	19.1	8.5
1300	7.6	19.5	8.5
1400	7.6	19.5	8.5
1500	7.6	20.0	8.5
1600	7.6	20.0	8.5
1700	7.5	20.0	8.5
1800	7.5	20.0	8.6
1900	7.4	20.5	8.6
2000	7.4	20.5	8.6
2100	7.7	20.5	8.6
2200	8.0	20.5	8.6
2300	8.3	20.0	8.6
2400	8.6	20.0	8.6
Aug. 30, 1978			
0100	8.9	19.5	8.6
0200	9.0	19.5	8.6
0300	8.7	20.0	8.6
0400	8.4	20.0	8.5
0500	8.0	20.0	8.5
0600	7.8	20.0	8.5
0700	7.5	20.0	8.5
0800	7.4	19.5	8.5
0900	7.4	19.5	8.5
1000	7.4	19.5	8.5

05059400 SHEYENNE RIVER NEAR HORACE, ND

LOCATION.--Lat 46°48'13", long 96°54'13', in NW¼NW¼ sec. 5, T.138 N., R. 49 W., Cass County, Hydrologic Unit 09020204, at bridge on county road 3 mi (4.8 km) north, and 0.1 mi (0.2 km) east of Horace.

DRAINAGE AREA.--8,800 mi² (22,800 km²), approximately, of which about 5,780 mi (9,300 km) is probably non-contributing, including 3,800 mi (6,114.2 km) in closed basins.

PERIOD OF RECORD.--Water years 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1976 to current year.
WATER TEMPERATURES: September 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,330 micromhos Jan. 31, Feb. 1, 1978; minimum, 336 micromhos May 5, 1977.
WATER TEMPERATURES: Maximum, 31.0°C July 19, 1977; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,330 micromhos Jan. 31, Feb. 1; minimum, 386 micromhos Sept. 16.
WATER TEMPERATURES: Maximum, 29.0°C July 17; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT												
18...	1730	--	57	860	8.3	8.5	11.0	97	563	.77	86.6	.02
NOV												
30...	1700	65	--	1050	7.7	.0	7.4	52	687	.93	121	.19
DEC												
22...	1345	--	69	1120	7.7	.0	5.8	41	748	1.02	139	.43
JAN												
24...	1745	43	--	1110	7.4	.5	4.0	29	772	1.05	89.6	.77
MAR												
01...	1030	--	100	1000	7.5	.0	6.6	46	629	.86	170	.96
24...	1600	400	--	800	7.3	1.0	9.8	71	525	.71	567	.83
APR												
28...	1200	--	629	650	8.2	11.5	10.4	98	423	.58	718	.61
MAY												
25...	1145	223	--	875	8.2	21.0	7.8	90	551	.75	332	.02
JUN												
28...	1600	130	--	900	8.1	25.5	8.1	101	539	.73	189	.03
JUL												
27...	1615	59	--	820	8.4	24.5	7.8	95	412	.56	65.6	.03
AUG												
31...	1000	50	--	910	8.5	19.5	7.0	78	620	.84	83.7	.01
SEP												
26...	0815	96	--	599	7.9	15.0	8.7	--	393	.53	102	.41

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT	
18...	.05
NOV	
30...	.04
DEC	
22...	.11
JAN	
24...	.09
MAR	
01...	.10
24...	.10
APR	
28...	.09
MAY	
25...	.04
JUN	
28...	.05
JUL	
27...	.07
AUG	
31...	.07
SEP	
26...	.12

05059400 SHEYENNE RIVER NEAR HORACE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1150	1080	932	904	1060	1060	1150	1120	1330	1300	1030	994
2	1150	1050	933	910	1080	1050	1120	1110	1310	1290	1010	991
3	1090	1030	934	889	1090	1060	1130	1100	1300	1250	1000	982
4	1040	1010	941	918	1100	1070	1120	1100	1250	1210	1000	969
5	1020	970	936	919	1130	1100	1120	1110	1240	1200	993	966
6	990	939	960	936	1150	1130	1120	1110	1220	1180	990	957
7	939	933	967	955	---	---	1130	1110	1190	1160	986	947
8	939	903	1000	974	---	---	1140	1130	1170	1130	978	950
9	921	876	1010	957	---	---	1150	1130	1160	1130	958	911
10	927	915	958	912	---	---	1160	1120	1180	1150	950	912
11	927	870	917	901	---	---	1160	1130	1190	1160	941	925
12	870	838	941	918	---	---	1160	1150	1190	1170	938	927
13	848	814	936	914	---	---	1160	1140	1190	1160	935	908
14	---	---	943	932	---	---	1160	1130	1200	1170	926	896
15	---	---	968	944	---	---	1170	1150	1190	1120	918	888
16	---	---	969	928	---	---	1170	1150	1120	1030	920	890
17	---	---	987	939	---	---	1170	1150	1030	996	923	877
18	---	---	982	952	---	---	1170	1140	1030	998	908	878
19	883	813	971	959	---	---	1170	1140	1020	994	900	860
20	900	848	978	966	---	---	1170	1140	1010	984	902	886
21	941	890	979	961	---	---	1170	1150	1020	992	899	831
22	966	942	979	961	1070	1050	1160	1120	1010	994	885	851
23	973	937	980	962	1070	1050	1140	1100	1010	979	877	853
24	962	932	1000	981	1090	1070	1130	1100	1020	998	860	767
25	963	872	1030	1000	1130	1090	1160	1140	1030	1000	745	696
26	921	856	1030	995	1130	1110	1170	1160	1050	1010	688	603
27	928	873	995	971	1150	1130	1170	1150	1050	999	582	464
28	941	890	1020	978	1180	1130	1180	1160	1020	995	487	436
29	919	907	1080	1020	1180	1150	1200	1160	---	---	513	471
30	937	908	1080	1020	1190	1160	1190	1170	---	---	516	489
31	932	877	---	---	1170	1150	1330	1150	---	---	506	489
MONTH	1150	813	1080	889	1190	1050	1330	1100	1330	979	1030	436

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	491	485	703	663	889	828	895	872	807	741	938	867
2	481	469	708	675	897	877	888	822	---	---	921	839
3	472	454	710	677	903	873	846	800	---	---	877	777
4	467	436	744	708	904	879	900	840	---	---	867	798
5	464	448	772	738	906	881	893	821	---	---	882	806
6	459	430	782	744	940	891	896	858	---	---	876	824
7	461	444	771	762	953	898	903	884	---	---	898	828
8	465	442	---	---	943	910	923	898	745	688	881	832
9	466	447	792	770	950	938	938	910	---	---	886	814
10	472	448	794	751	969	940	946	898	765	675	897	832
11	471	434	791	769	977	942	945	893	811	688	896	840
12	493	457	811	793	984	963	921	857	761	688	869	774
13	513	475	813	786	998	968	909	824	825	715	869	791
14	533	466	819	788	994	970	912	849	829	798	880	804
15	573	514	831	803	995	977	933	890	839	798	889	401
16	606	555	828	810	991	962	936	909	839	765	441	386
17	630	595	835	811	998	974	940	918	843	803	497	429
18	668	620	836	818	999	952	944	910	848	825	493	471
19	692	649	853	819	977	949	931	909	853	789	558	485
20	710	665	859	840	978	945	935	891	829	785	562	520
21	719	674	871	847	952	885	917	860	848	785	582	567
22	730	700	873	839	987	936	898	839	848	798	597	579
23	742	712	879	850	1000	965	886	838	834	794	606	591
24	734	694	887	862	1020	885	874	827	825	769	615	586
25	725	636	894	866	981	921	844	778	843	773	588	569
26	717	627	892	876	977	930	832	784	---	---	612	586
27	699	629	905	883	956	914	834	789	---	---	638	610
28	701	650	890	878	940	895	834	789	---	---	662	611
29	711	666	885	871	933	903	---	---	---	---	666	579
30	679	638	893	863	916	892	820	757	---	---	670	614
31	---	---	888	864	---	---	---	---	---	---	---	---
MONTH	742	430	905	663	1020	828	946	757	853	675	938	386

05059400 SHEYENNE RIVER NEAR HORACE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12.0	11.5	11.0	10.0	.0	.0	.5	.0	1.0	.5	.5	.0
2	11.5	10.5	10.0	8.5	.0	.0	.5	.0	1.0	.5	.0	.0
3	11.5	10.0	8.5	8.0	.5	.0	.5	.0	1.0	.5	.5	.0
4	11.0	10.0	8.0	6.5	.5	.0	.5	.0	.5	.5	.5	.0
5	10.5	9.5	7.0	6.0	.5	.0	.5	.0	1.0	.5	.5	.0
6	9.5	9.0	8.5	7.0	.5	.0	.5	.5	1.0	.5	.5	.0
7	9.0	7.5	9.5	8.5	---	---	.5	.5	.5	.5	.5	.0
8	7.0	6.5	10.0	8.0	---	---	1.0	.5	.5	.5	.5	.0
9	7.0	5.5	8.0	2.5	---	---	1.0	.5	.5	.0	1.0	.0
10	7.0	6.5	2.0	.5	---	---	1.0	.5	1.0	.0	1.0	.5
11	7.0	6.0	1.0	.0	---	---	1.0	.5	.5	.5	.5	.5
12	6.5	5.5	.5	.0	---	---	.5	.5	.5	.0	.5	.0
13	7.5	6.0	1.0	.0	---	---	.5	.5	.5	.0	.5	.5
14	---	---	.5	.0	---	---	.5	.5	.5	.0	1.0	.5
15	---	---	.0	.0	---	---	1.0	.5	.5	.0	1.0	.5
16	---	---	.5	.0	---	---	1.0	.5	.5	.0	1.0	.5
17	---	---	.0	.0	---	---	1.0	.5	.5	.0	1.5	.5
18	---	---	.5	.0	---	---	1.0	.5	.5	.0	1.0	.5
19	9.0	8.0	.0	.0	---	---	1.0	.5	.5	.0	1.5	.5
20	9.5	8.0	.5	.0	---	---	1.0	.5	.5	.0	1.0	.5
21	9.5	8.5	.5	.5	---	---	1.0	.5	.5	.0	2.0	.5
22	8.5	8.0	.5	.0	.0	.0	1.0	.5	.5	.0	1.5	.5
23	7.5	6.5	.5	.0	.0	.0	.5	.5	.5	.0	1.0	.5
24	7.5	6.5	.5	.0	.5	.0	1.0	.5	.5	.0	1.0	1.0
25	8.5	7.0	.5	.0	.5	.0	1.5	.5	.5	.0	1.5	1.0
26	9.0	8.0	.5	.0	.5	.0	1.0	1.0	.5	.0	2.0	1.0
27	10.0	9.0	.5	.0	.5	.0	1.0	.5	.0	.0	2.0	1.5
28	9.0	8.5	.5	.0	.0	.0	1.0	.5	.5	.0	2.5	1.5
29	10.0	9.0	.0	.0	.0	.0	1.0	.5	---	---	2.0	1.5
30	11.0	10.0	.5	.0	.5	.0	.5	.5	---	---	2.5	2.0
31	11.5	11.0	---	---	.5	.5	1.0	.5	---	---	2.5	2.0
MONTH	12.0	5.5	11.0	.0	.5	.0	1.5	.0	1.0	.0	2.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2.5	2.0	13.5	12.0	19.0	16.5	24.0	23.5	22.5	21.0	23.5	20.5
2	2.5	2.5	14.0	12.5	17.0	15.5	25.0	23.0	21.5	20.0	24.5	22.0
3	3.0	2.5	15.0	13.0	18.0	15.5	26.0	23.5	20.5	18.0	24.5	21.5
4	3.5	2.5	15.5	13.5	19.0	16.5	26.5	24.5	21.0	17.5	25.5	22.5
5	3.0	2.5	16.0	14.0	20.0	16.5	28.0	24.5	22.5	19.5	27.0	24.0
6	3.5	3.0	16.0	14.5	20.5	18.0	28.5	26.0	24.0	20.5	27.0	25.0
7	3.5	3.0	15.5	14.0	20.5	17.5	27.0	25.0	25.5	22.0	26.5	24.5
8	3.5	3.0	---	---	20.0	17.5	24.5	22.5	25.0	23.0	26.0	24.0
9	3.5	3.5	13.5	11.5	20.5	17.5	22.5	20.5	24.5	21.0	24.5	23.0
10	3.5	3.5	15.0	12.0	21.0	19.0	23.0	20.5	25.0	21.5	23.5	21.5
11	4.5	3.5	15.5	14.0	20.5	20.0	23.0	20.5	25.5	22.5	24.0	22.5
12	5.0	4.5	15.5	14.0	20.5	18.0	23.5	21.0	27.5	23.5	22.5	19.0
13	5.5	5.0	15.5	13.0	21.5	19.0	24.0	21.0	27.5	25.5	19.0	18.0
14	7.0	5.5	16.5	13.5	23.0	20.0	25.5	22.0	27.5	26.0	18.0	16.5
15	7.5	6.5	17.5	14.5	22.5	21.0	26.5	23.5	26.5	22.5	18.0	16.5
16	7.5	7.5	18.5	16.0	23.0	21.0	28.0	25.0	23.5	21.0	18.0	17.0
17	8.0	8.0	19.5	17.0	22.0	21.0	29.0	26.0	24.0	22.5	17.5	16.5
18	8.5	8.0	20.5	17.5	22.5	19.5	28.0	26.0	22.5	21.0	16.5	16.0
19	9.0	8.5	20.0	18.5	21.5	20.5	26.5	24.5	22.0	19.5	16.0	14.5
20	9.0	9.0	18.5	16.5	20.5	19.0	24.5	22.5	23.0	19.5	15.0	14.0
21	9.0	9.0	19.0	16.5	21.0	18.0	25.0	22.5	23.0	19.5	14.5	13.0
22	9.0	9.0	19.5	17.0	20.5	19.5	24.0	22.0	24.5	21.5	14.5	12.5
23	9.0	9.0	21.0	18.0	21.5	19.5	24.5	21.0	24.0	21.0	15.0	13.5
24	9.5	9.0	21.5	19.5	23.5	20.5	25.5	22.0	23.0	20.0	15.5	14.0
25	10.0	9.5	23.0	20.5	23.0	21.5	27.5	24.0	23.5	21.5	15.5	14.0
26	10.5	10.0	23.0	22.0	23.5	21.5	26.5	24.5	---	---	16.0	14.5
27	10.5	10.0	22.5	21.5	24.5	21.5	25.0	22.5	---	---	15.0	13.5
28	12.0	10.5	21.5	20.5	26.0	23.0	25.0	22.0	---	---	14.0	13.0
29	13.5	11.5	20.0	19.5	26.0	24.5	23.5	21.5	---	---	14.0	13.5
30	27.5	12.0	20.0	17.5	25.5	24.0	23.5	20.5	---	---	14.0	12.0
31	---	---	20.0	18.0	---	---	24.0	21.0	---	---	---	---
MONTH	27.5	2.0	23.0	11.5	26.0	15.5	29.0	20.5	27.5	17.5	27.0	12.0

05059500 SHEYENNE RIVER AT WEST FARGO, ND

LOCATION.--Lat 46°53'28", long 96°54'24", in SE¼SE¼ sec.31, T.140 N., R.49 W., Cass County, Hydrologic Unit 09020204, on right bank at downstream side of county highway bridge, 1 mi (2 km) north of West Fargo, 3 mi (5 km) upstream from Maple River, and at mile 24.5 (39.4 km).

DRAINAGE AREA.--8,870 mi² (22,970 km²), approximately, of which about 5,780 mi² (14,970 km²) is probably noncontributing, includes 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--March to November 1902 (gage heights only), April 1903 to October 1905, March to August 1919, September 1929 to current year. Published as "at or near Haggart" 1902-7, 1919. Records for March to November 1902 and November 1905 to June 1907, published in WSP 100, 171, 207, and 245, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1388: 1904(M). WSP 1728: Drainage area. See also "PERIOD OF RECORD."

GAGE.--Water-stage recorder. Datum of gage is 877.19 ft (267.368 m) National Geodetic Vertical Datum of 1929. June 27, 1933 to September 1969 on left bank about 600 ft (180 m) downstream on unimproved channel at same datum. See WSP 1728 or 1913 for history of changes prior to June 27, 1933.

REMARKS.--Records fair. Flow regulated to a large degree by Lake Ashtabula (station 05057500) 246 mi (396 km) upstream. Above 3,000 ft³/s (84.96 m³/s) overflow occurs upstream between Kindred and West Fargo. This overflow bypasses the station in the Maple River basin and drain 21 to the west and in the Wild Rice River basin to the east. This overflow is not included in the flow for this station. Some small diversions for municipal supply. Figures of daily discharge do not include diversions to the Red River of the North; however, there were no diversions during the 1978 water year.

AVERAGE DISCHARGE (ADJUSTED).--51 years (water years 1904-5, 1930-78), 169 ft³/s (4.786 m³/s) 122,400 acre-ft/yr (151 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 109,000 acre-ft/yr (130 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft³/s (88.1 m³/s) Apr. 4, 1966; maximum gage height, 22.25 ft (6.782 m) July 5, 1975, backwater from Red and/or Maple Rivers; minimum daily, 1.0 ft³/s (0.028 m³/s) Sept. 23, 1976, caused by diversion to Red River of the North.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft³/s (47.0 m³/s) Mar. 29, gage height, 21.04 ft (6.413 m) backwater from Red and/or Maple Rivers; minimum daily, 34 ft³/s (0.96 m³/s) Sept. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	45	65	55	50	100	1480	555	179	120	60	46
2	74	44	65	55	55	110	1330	519	163	130	57	45
3	63	45	64	55	60	110	1170	447	158	157	54	44
4	58	45	62	53	60	110	1100	392	153	175	53	44
5	58	46	60	50	65	110	1070	384	149	161	51	43
6	61	46	58	50	70	110	1050	349	148	139	48	41
7	83	47	56	50	80	110	1000	321	146	131	48	39
8	85	52	54	50	90	110	1000	314	143	112	47	38
9	74	60	52	50	100	110	1000	324	141	111	45	35
10	75	60	50	48	100	110	1100	334	140	109	42	34
11	78	60	50	48	100	110	1240	341	135	112	42	34
12	73	65	52	45	100	110	1210	339	133	136	41	36
13	67	70	52	45	100	115	1280	327	129	168	39	35
14	62	70	54	45	100	120	1390	339	125	170	38	40
15	57	72	54	45	100	130	1450	336	126	134	43	298
16	55	75	56	45	100	140	1460	326	150	111	42	670
17	54	75	56	45	100	160	1460	316	118	100	42	436
18	55	73	58	45	100	180	1440	301	119	91	39	283
19	59	72	60	45	100	200	1430	281	130	95	38	195
20	62	70	62	45	100	210	1420	266	134	80	41	151
21	62	60	65	45	100	230	1310	247	140	73	42	144
22	58	50	70	45	100	300	1080	241	141	67	42	150
23	53	45	69	45	110	320	885	230	184	69	54	135
24	52	50	69	43	115	400	784	224	194	66	43	120
25	48	54	69	43	115	650	736	225	174	62	46	105
26	44	58	65	42	110	900	716	264	154	61	58	96
27	44	60	63	42	100	1400	680	283	140	59	62	87
28	43	62	62	40	96	1500	624	260	130	58	59	77
29	40	63	60	40	---	1650	596	255	127	56	56	74
30	40	64	60	40	---	1650	574	226	123	54	52	77
31	46	---	58	45	---	1620	---	204	---	56	50	---
TOTAL	1867	1758	1850	1439	2576	13185	33065	9770	4326	3223	1474	3652
MEAN	60.2	58.6	59.7	46.4	92.0	425	1102	315	144	104	47.5	122
MAX	85	75	70	55	115	1650	1480	555	194	175	62	670
MIN	40	44	50	40	50	100	574	204	118	54	38	34
AC-FT	3700	3490	3670	2850	5110	26150	65580	19380	8580	6390	2920	7240

CAL YR 1977 TOTAL 20027.4 MEAN 54.9 MAX 437 MIN 6.5 AC-FT 39720
WTR YR 1978 TOTAL 78185.0 MEAN 214 MAX 1650 MIN 34 AC-FT 155100

05059600 MAPLE RIVER NEAR HOPE, ND

LOCATION.--Lat 47°19'30", long 97°47'25", in NW¼NW¼ sec.4, T.144 N., R.56 W., Steele County, Hydrologic Unit 09020205, 100 ft (30 m) downstream from box culvert on State Highway 38, 500 ft (152 m) east of the intersection of State Highways 32 and 38, and 3 mi (5 km) west of Hope.

DRAINAGE AREA.--20.2 mi² (52.3 km²), of which about 2.8 mi² (7.3 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,296.62 ft (395.210 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

AVERAGE DISCHARGE.--14 years, 3.00 ft³/s (0.085 m³/s), 2,170 acre-ft/yr (2.68 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 734 ft³/s (20.8 m³/s) June 10, 1968, gage height, 4.78 ft (1.457 m); maximum gage height, 5.46 ft (1.664 m) Mar. 15, 1968, backwater from ice; no flow for many months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 26	--	a*175	4.96	*4.19	1.277	Apr. 6	0500	116	3.29	3.49	1.064
Mar. 29	0700	106	3.00	3.52	1.073						

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.00	.00	.00	.00	40	2.5	.18	.00	.00	.00
2	.01	.01	.00	.00	.00	.00	20	2.3	.18	.00	.00	.00
3	.01	.01	.00	.00	.00	.00	13	2.2	.15	.00	.00	.00
4	.01	.01	.00	.00	.00	.00	13	2.0	.06	.00	.00	.00
5	.01	.01	.00	.00	.00	.00	38	1.8	.03	.00	.00	.00
6	.01	.01	.00	.00	.00	.00	97	1.7	.01	.00	.00	.00
7	.01	.01	.00	.00	.00	.00	48	1.6	.00	.00	.00	.00
8	.01	.01	.00	.00	.00	.00	23	1.9	.00	.00	.00	.00
9	.01	.01	.00	.00	.00	.00	17	2.3	.00	.00	.00	.00
10	.01	.01	.00	.00	.00	.00	16	2.4	.00	.00	.00	.00
11	.01	.01	.00	.00	.00	.00	14	2.1	.00	.00	.00	.00
12	.01	.01	.00	.00	.00	.00	12	2.0	.00	.00	.00	.00
13	.01	.01	.00	.00	.00	.00	9.9	1.9	.00	.00	.00	.00
14	.01	.01	.00	.00	.00	.00	7.9	2.1	.00	.00	.00	.00
15	.01	.01	.00	.00	.00	.00	7.1	2.1	.00	.00	.00	.00
16	.01	.01	.00	.00	.00	.00	6.2	1.9	.00	.00	.00	.00
17	.01	.01	.00	.00	.00	.00	6.1	1.5	.00	.00	.00	.00
18	.01	.01	.00	.00	.00	.00	5.9	1.1	.00	.00	.00	.00
19	.01	.01	.00	.00	.00	.00	5.7	.87	.00	.00	.00	.00
20	.01	.01	.00	.00	.00	.00	4.9	.59	.00	.00	.00	.00
21	.01	.00	.00	.00	.00	.10	4.2	.41	.00	.00	.00	.00
22	.01	.00	.00	.00	.00	.50	4.0	.32	.00	.00	.00	.00
23	.01	.00	.00	.00	.00	.60	4.6	.30	.00	.00	.00	.00
24	.01	.00	.00	.00	.00	20	4.3	.19	.00	.00	.00	.00
25	.01	.00	.00	.00	.00	75	4.3	.18	.00	.00	.00	.00
26	.01	.00	.00	.00	.00	115	4.4	.18	.00	.00	.00	.00
27	.01	.00	.00	.00	.00	115	3.9	.18	.00	.00	.00	.00
28	.01	.00	.00	.00	.00	110	3.8	.15	.00	.00	.00	.00
29	.01	.00	.00	.00	---	80	3.4	.15	.00	.00	.00	.00
30	.01	.00	.00	.00	---	54	3.1	.10	.00	.00	.00	.00
31	.01	---	.00	.00	---	75	---	.08	---	.00	.00	---
TOTAL	.31	.20	.00	.00	.00	645.20	444.7	39.10	.61	.00	.00	.00
MEAN	.010	.007	.000	.000	.000	20.8	14.8	1.26	.020	.000	.000	.000
MAX	.01	.01	.00	.00	.00	115	97	2.5	.18	.00	.00	.00
MIN	.01	.00	.00	.00	.00	.00	3.1	.08	.00	.00	.00	.00
AC-FT	.6	.4	.00	.00	.00	1280	882	78	1.2	.00	.00	.00

CAL YR 1977 TOTAL 2.82 MEAN .008 MAX .37 MIN .00 AC-FT 5.6
WTR YR 1978 TOTAL 1130.12 MEAN 3.10 MAX 115 MIN .00 AC-FT 2240

05059700 MAPLE RIVER NEAR ENDERLIN, ND

LOCATION.--Lat 46°37'18", long 97°34'25", on west line sec.2, T.136 N., R.55 W., Ransom County, Hydrologic Unit 09020205, on left bank 25 ft (8 m) downstream from county highway bridge, 1 mi (1.6 km) downstream from South Branch, and 1.2 mi (1.9 km) east of Enderlin.

DRAINAGE AREA.--843 mi² (2,180 km²), of which about 47 mi² (122 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.72 ft (322.088 m) National Geodetic Vertical Datum of 1929. Sept. 21, 1956 to June 9, 1969, recording gage on right bank at same datum. Prior to Sept. 20, 1956, nonrecording gage at site 25 ft (8 m) upstream at same datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--22 years, 34.2 ft³/s (0.969 m³/s) 24,780 acre-ft/yr (30.6 hm³/yr); median of yearly mean discharges, 23 ft³/s (0.65 m³/s) 16,700 acre-ft/yr (21 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,610 ft³/s (216 m³/s) June 30, 1975, gage height, 15.41 ft (4.697 m); minimum daily, 0.1 ft³/s (0.003 m³/s) Dec. 7-9, 1963; minimum gage height, 1.90 ft (0.579 m) Oct. 5, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,350 ft³/s (66.6 m³/s) Mar. 24, gage height, 10.19 ft (3.106 m), backwater from ice, only peak above base of 100 ft³/s (2.83 m³/s); minimum daily, 2.0 ft³/s (0.057 m³/s) Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	4.5	5.2	3.3	3.4	3.1	622	39	11	19	5.4	2.2
2	3.1	4.5	5.2	3.3	3.4	3.1	602	32	11	17	5.6	2.2
3	3.1	4.5	5.2	3.3	3.4	3.1	557	30	11	14	5.4	2.2
4	3.1	4.1	5.2	3.3	3.4	3.1	513	29	12	12	4.8	2.1
5	2.9	3.9	5.0	3.3	3.4	3.1	476	28	12	11	4.5	2.0
6	2.9	3.9	5.0	3.3	3.4	3.1	454	25	13	24	4.3	2.1
7	4.3	3.9	5.0	3.3	3.3	3.1	449	25	13	47	3.9	2.5
8	5.4	4.8	5.0	3.1	3.3	3.1	464	31	13	44	3.9	3.7
9	5.4	6.4	4.1	3.1	3.2	3.1	464	31	13	40	3.9	2.4
10	5.4	9.4	4.1	2.9	3.2	3.4	436	30	12	37	3.9	2.5
11	5.6	5.9	4.1	2.9	3.2	4.0	394	27	12	34	3.4	2.9
12	5.6	5.9	4.1	2.9	3.2	4.0	348	29	11	30	3.4	4.5
13	5.6	5.9	4.1	2.9	3.1	4.4	309	30	10	26	3.4	2.7
14	5.6	5.9	4.1	2.9	3.1	6.2	277	28	9.9	22	2.6	2.6
15	5.6	5.6	4.1	2.9	3.2	9.9	243	25	9.4	20	3.4	2.6
16	5.4	5.6	4.1	2.9	3.2	10	216	22	18	18	3.3	3.5
17	5.2	5.6	4.1	2.9	3.1	9.6	189	21	19	16	2.9	3.0
18	5.2	5.7	4.7	2.9	3.1	11	166	19	26	14	2.8	2.9
19	5.0	5.9	4.9	2.9	3.1	57	145	18	29	13	2.7	3.0
20	4.5	15	6.3	2.9	3.1	295	126	18	19	13	2.5	2.8
21	4.1	30	5.6	2.9	3.1	428	110	17	15	12	2.4	2.7
22	4.1	14	4.6	2.9	3.1	590	96	19	13	11	2.4	2.7
23	3.9	9.1	4.3	2.9	3.1	1160	90	20	12	10	3.1	2.9
24	3.9	5.4	4.0	2.9	3.1	1720	81	17	11	8.8	2.7	3.1
25	3.9	5.4	3.9	2.9	3.1	1160	71	16	11	8.5	2.6	2.6
26	4.3	5.4	3.7	3.0	3.1	1200	65	15	23	7.4	2.4	2.8
27	3.9	5.4	3.7	3.0	3.1	1070	58	14	52	6.6	2.2	2.9
28	3.7	5.4	3.7	3.2	3.1	870	52	13	32	6.1	2.2	2.7
29	3.4	5.4	3.6	3.2	---	770	47	13	22	5.5	2.2	2.7
30	4.1	5.2	3.5	3.3	---	722	43	12	21	5.3	2.2	2.7
31	4.3	---	3.4	3.4	---	670	---	11	---	5.2	2.2	---
TOTAL	135.8	207.6	137.6	94.8	89.6	10802.4	8163	704	496.3	557.4	102.6	82.2
MEAN	4.38	6.92	4.44	3.06	3.20	348	272	22.7	16.5	18.0	3.31	2.74
MAX	5.6	30	6.3	3.4	3.4	1720	622	39	52	47	5.6	4.5
MIN	2.9	3.9	3.4	2.9	3.1	3.1	43	11	9.4	5.2	2.2	2.0
AC-FT	269	412	273	188	178	21430	16190	1400	984	1110	204	163

CAL YR 1977 TOTAL 2400.3 MEAN 6.60 MAX 121 MIN 2.3 AC-FT 4760
WTR YR 1978 TOTAL 21573.3 MEAN 59.1 MAX 1720 MIN 2.0 AC-FT 42790

05060500 RUSH RIVER AT AMENIA, ND

LOCATION.--Lat 47°01'00", long 97°12'50", in sec.24, T.141 N., R.52 W., Cass County, Hydrologic Unit 09020204, on left bank on downstream side of bridge on State Highway 18, and 0.6 mi (1.0 km) north of Amenia.

DRAINAGE AREA.--116 mi² (300 km²).

PERIOD OF RECORD.--July 1946 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is about 943 ft (287 m), from topographic map. See WSP 1913 for history of changes prior to June 10, 1961.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--32 years, 8.75 ft³/s (0.248 m³/s), 6,340 acre-ft/yr (7.82 hm³/yr); median of yearly mean discharges, 5.6 ft³/s (0.16 m³/s), 4,100 acre-ft/yr (5.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft³/s (72.2 m³/s) Apr. 18, 1975; maximum gage height, 12.15 ft (3.703 m) Mar. 23, 1966, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 27 ft³/s (0.76 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	2115	--	--	^{a}*10.44	3.182	Apr. 7	0215	130	3.68	6.21	1.893
Mar. 29	--	^{a}*375	10.6	8.99	2.740						

No flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.18	.00	.00	.00	.00	120	7.6	4.9	.09	.08	.00
2	.00	.18	.00	.00	.00	.00	109	4.1	4.6	.12	.06	.00
3	.00	.18	.00	.00	.00	.00	89	4.1	4.1	.06	.05	.00
4	.00	.15	.00	.00	.00	.00	62	3.9	4.2	.02	.04	.00
5	.00	.12	.00	.00	.00	.00	68	3.6	16	.09	.02	.00
6	.00	.12	.00	.00	.00	.00	105	3.0	16	.06	.02	.00
7	.00	.12	.00	.00	.00	.00	123	2.9	13	.06	.01	.00
8	.00	.10	.00	.00	.00	.00	99	3.8	13	.03	.01	.00
9	.29	.10	.00	.00	.00	.00	71	4.4	11	.02	.00	.00
10	.07	.10	.00	.00	.00	.00	57	6.7	10	.02	.00	.00
11	.02	.10	.00	.00	.00	.00	50	11	9.0	.00	.00	.00
12	5.2	.10	.00	.00	.00	.00	44	9.1	8.0	.00	.00	1.0
13	11	.10	.00	.00	.00	.00	35	5.8	7.0	.00	.00	1.5
14	5.8	.10	.00	.00	.00	.00	29	4.6	6.0	.00	.00	.03
15	4.2	.10	.00	.00	.00	.00	25	3.9	5.0	.00	.00	.00
16	3.3	.08	.00	.00	.00	.00	23	3.6	4.0	.00	.00	.00
17	2.9	.06	.00	.00	.00	.00	21	3.2	3.0	.00	.00	.00
18	2.1	.04	.00	.00	.00	.00	18	2.2	2.0	.00	.00	.00
19	1.7	.02	.00	.00	.00	.00	16	2.6	1.0	.12	.00	.00
20	.93	.08	.00	.00	.00	.00	14	4.1	.80	2.3	.00	.00
21	.68	.10	.00	.00	.00	.00	13	17	.57	1.7	.00	.00
22	.98	.10	.00	.00	.00	1.0	13	20	.15	.80	.00	.00
23	.98	.10	.00	.00	.00	200	14	16	.09	.43	.31	.00
24	.18	.08	.00	.00	.00	330	14	16	.15	.26	1.4	.00
25	.12	.06	.00	.00	.00	325	14	15	.26	1.5	.18	.00
26	.03	.04	.00	.00	.00	320	13	13	.22	2.1	.00	.00
27	.06	.02	.00	.00	.00	330	12	12	.09	1.4	.00	.00
28	.15	.00	.00	.00	.00	330	11	9.8	.06	.37	.00	.00
29	.18	.00	.00	.00	---	326	11	5.5	.02	.26	.00	.00
30	.22	.00	.00	.00	---	237	11	4.6	.03	.22	.00	.00
31	.18	---	.00	.00	---	138	---	4.6	---	.09	.00	---
TOTAL	41.27	2.63	.00	.00	.00	2537.00	1304	227.7	144.24	12.12	2.18	2.53
MEAN	1.33	.088	.000	.000	.000	81.8	43.5	7.35	4.81	.39	.070	.084
MAX	11	.18	.00	.00	.00	330	123	20	16	2.3	1.4	1.5
MIN	.00	.00	.00	.00	.00	.00	11	2.2	.02	.00	.00	.00
AC-FT	82	5.2	.00	.00	.00	5030	2590	452	286	24	4.3	5.0

CAL YR 1977 TOTAL 291.32 MEAN .80 MAX 30 MIN .00 AC-FT 578
WTR YR 1978 TOTAL 4273.67 MEAN 11.7 MAX 330 MIN .00 AC-FT 8480

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN

LOCATION.--Lat 47°21'10", long 96°50'50", on line between secs.24 and 25, T.145 N., R.49 W., Traill County, Hydrologic Unit 09020107, on left bank on upstream side of highway bridge, 0.5 mi (0.8 km) west of Halstad, 2.5 mi (4.0 km) downstream from Wild Rice River, and at mile 375.2 (603.7 km).

DRAINAGE AREA.--21,800 mi^2 (56,500 km^2), approximately, including 3,800 mi^2 (9,840 km^2) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1936 to June 1937 (no winter records), April 1942 to September 1960 (spring and summer months only), May 1961 to current year.

REVISED RECORDS.--WSP 1388: 1936, 1950. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 826.65 ft (251.963 m) National Geodetic Vertical Datum of 1929. Prior to July 17, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good. Some regulation by many controlled lakes and reservoirs on tributaries.

AVERAGE DISCHARGE.--17 years (1961-78), 1,822 ft^3/s (51.60 m^3/s), 1,320,000 acre-ft/yr (1.63 km^3/yr); median of yearly mean discharges, 1,760 ft^3/s (49.8 m^3/s), 1,280,000 acre-ft/yr (1.6 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,900 ft^3/s (1,130 m^3/s) July 10, 1975, gage height, 38.55 ft (11.750 m); minimum observed, 5.4 ft^3/s (0.15 m^3/s) Oct. 8, 9, 12-14, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of about 38.5 ft (11.73 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,800 ft^3/s (816 m^3/s) Apr. 9, gage height, 37.61 ft (11.464 m); minimum, 185 ft^3/s (5.24 m^3/s) Sept. 13, 14, gage height, 2.33 ft (0.710 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	405	800	810	415	535	12200	4170	2260	1520	989	360
2	628	431	800	825	420	540	20000	3930	2220	1450	989	348
3	660	415	800	840	445	540	24000	3620	2160	1380	973	320
4	680	408	780	840	460	545	24900	3490	2100	1490	932	274
5	663	440	760	840	480	550	25400	3340	2070	1880	894	247
6	624	479	740	830	485	570	27800	3210	2040	2160	863	236
7	604	496	720	825	500	590	28400	3110	2000	2240	835	229
8	621	512	700	820	505	605	28600	3040	1980	2170	740	214
9	751	555	690	800	510	630	28700	3040	1920	2050	702	202
10	871	586	670	800	490	645	28700	3070	1870	2050	666	197
11	812	499	650	800	460	660	28200	3030	1860	2460	656	202
12	776	420	645	785	460	705	27000	3070	1870	2960	604	197
13	769	560	645	770	465	730	25400	3040	1880	3410	552	188
14	776	530	645	750	470	735	23300	3010	1860	3740	492	195
15	805	540	645	750	475	735	21100	2980	1820	3680	479	207
16	816	530	645	750	475	735	18600	2910	2000	3270	476	209
17	801	520	670	750	475	735	16300	2830	2960	2830	431	254
18	765	580	700	750	475	735	14100	2750	2940	2380	405	604
19	733	600	750	750	475	735	12200	2680	2410	2140	392	621
20	705	650	770	750	475	770	10300	2650	2120	2020	392	476
21	660	680	780	730	475	810	8600	2610	1880	1900	380	370
22	621	720	780	700	480	890	7220	2570	1700	1710	344	320
23	579	740	780	680	490	1070	6180	2820	1580	1560	364	329
24	545	780	780	600	495	1200	5620	2870	1610	1490	424	412
25	519	800	780	550	500	1400	5330	2760	1660	1480	586	482
26	499	780	760	500	525	2000	5130	2650	1620	1500	532	469
27	479	760	740	490	530	3400	4980	2550	1640	1470	545	418
28	450	775	730	465	535	4600	4830	2480	1660	1290	558	370
29	428	790	740	455	---	5900	4630	2450	1640	1050	516	332
30	405	800	770	445	---	7200	4410	2390	1580	924	450	317
31	396	---	790	435	---	9000	---	2320	---	924	399	---
TOTAL	20041	17781	22655	21885	13445	50495	502130	91440	58910	62578	18560	9599
MEAN	646	593	731	706	480	1629	16740	2950	1964	2019	599	320
MAX	871	800	800	840	535	9000	28700	4170	2960	3740	989	621
MIN	396	405	645	435	415	535	4410	2320	1580	924	344	188
AC-FT	39750	35270	44940	43410	26670	100200	996000	181400	116800	124100	36810	19040

CAL YR 1977 TOTAL 132437 MEAN 363 MAX 1980 MIN 25 AC-FT 262700
WTR YR 1978 TOTAL 889519 MEAN 2437 MAX 28700 MIN 188 AC-FT 1764000

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued
(National stream-quality accounting network station)
(Radiochemical station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1964-67, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1977 to September 1978.
WATER TEMPERATURE: February 1977 to September 1978.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT												
06...	1415	628	650	8.5	10.5	--	--	--	--	--	310	67
NOV												
03...	1245	408	820	8.5	8.0	--	--	--	--	--	--	--
DEC												
13...	1515	645	760	7.9	.0	--	--	--	--	--	--	--
JAN												
27...	1300	490	755	7.5	.5	--	8.4	60	--	32	400	85
MAR												
02...	1135	534	700	7.6	.0	--	9.1	64	120	220	320	43
23...	1730	1050	550	8.4	1.0	--	7.0	51	2400	>54000	250	32
APR												
01...	1830	13800	260	--	.5	--	--	--	--	--	--	--
04...	1230	25500	245	--	1.0	--	--	--	--	--	--	--
08...	1245	28700	295	--	5.0	--	--	--	--	--	--	--
14...	1210	23300	390	--	5.5	--	--	--	--	--	--	--
17...	1415	16100	420	--	8.0	--	--	--	--	--	--	--
25...	1230	5360	520	8.3	8.0	--	9.2	79	800	K10200	250	80
MAY												
26...	1045	2650	630	8.1	22.5	60	6.5	76	83	150	300	120
JUN												
27...	1155	1640	810	8.2	23.5	95	5.8	72	--	--	370	150
JUL												
25...	1345	1480	750	8.3	26.0	120	5.0	63	K66	133	340	120
AUG												
29...	1430	510	675	8.3	23.0	50	7.0	84	106	500	280	82
SEP												
25...	1620	496	739	8.3	15.5	66	9.0	--	150	100	320	110

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT											
06...	63	37	35	19	.9	6.5	261	17	242	1.5	110
NOV											
03...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	--	--	--	--	--	--	--	--	--	--	--
JAN											
27...	78	49	29	14	.6	6.4	380	0	310	19	120
MAR											
02...	63	40	31	17	.8	5.8	340	0	280	14	79
23...	52	36	28	19	.8	6.0	270	0	220	1.7	58
APR											
01...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
25...	58	26	19	14	.5	6.5	210	0	170	1.7	100
MAY											
26...	66	33	29	17	.7	6.3	--	--	180	--	110
JUN											
27...	78	43	36	17	.8	7.9	--	--	220	--	210
JUL											
25...	75	38	32	16	.8	8.2	--	--	220	--	170
AUG											
29...	60	32	30	18	.8	6.6	--	--	200	--	110
SEP											
25...	69	35	37	20	.9	7.8	--	--	210	--	160

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT											
06...	18	.7	15	457	--	431	.62	775	--	--	--
JAN											
27...	15	.2	25	522	--	510	.71	691	--	.57	.43
MAR											
02...	13	.2	20	419	--	420	.57	604	--	.52	.22
23...	18	.2	15	339	--	340	.46	961	--	.61	.20
APR											
25...	9.3	.1	16	358	380	339	.49	5180	192	.68	.21
MAY											
26...	13	.2	9.8	400	--	376	.54	2860	--	.04	.03
JUN											
27...	17	.2	14	527	--	538	.72	2330	--	.43	.04
JUL											
25...	14	.2	19	484	--	489	.66	1930	--	.00	.02
AUG											
29...	18	.3	17	398	--	394	.54	548	--	.48	.05
SEP											
25...	18	.3	16	478	--	469	.65	640	--	.61	.16

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT									
06...	--	--	--	--	--	--	--	--	--
JAN									
27...	1.4	1.8	.96	.84	2.4	11	.15	.16	3
MAR									
02...	.98	1.2	.49	.71	1.7	7.6	.18	.15	--
23...	1.4	1.6	.79	.81	2.4	11	.27	.18	--
APR									
25...	1.1	1.3	.53	.77	2.0	8.8	.35	.16	5
MAY									
26...	--	--	--	.93	--	--	.27	.08	--
JUN									
27...	1.1	1.1	.35	.75	1.5	6.8	.39	.17	--
JUL									
25...	1.6	1.6	.86	.74	1.6	7.1	.36	.19	9
AUG									
29...	1.2	1.2	.55	.65	1.7	7.4	.36	.28	--
SEP									
25...	.94	1.1	.14	.96	1.7	7.6	.34	.20	--

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT									
06...	--	--	--	--	--	240	--	--	--
JAN									
27...	0	3	100	0	100	--	1	0	1
APR									
25...	1	4	200	100	100	--	--	--	--
JUL									
25...	3	6	300	100	200	--	--	--	--

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT									
06...	--	--	--	--	--	--	--	--	--
JAN									
27...	0	0	0	0	0	0	11	8	3
MAR									
02...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
APR									
25...	0	0	0	5	5	0	22	0	22
MAY									
26...	--	--	--	--	--	--	--	--	--
JUN									
27...	--	--	--	--	--	--	--	--	--
JUL									
25...	0	0	0	2	1	1	22	15	7
AUG									
29...	--	--	--	--	--	--	--	--	--
SEP									
25...	--	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)
OCT									
06...	--	--	120	--	--	20	--	--	--
JAN									
27...	450	--	30	130	50	80	.0	.0	.0
MAR									
02...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
APR									
25...	4200	--	30	420	390	30	.0	.0	.3
MAY									
26...	--	--	--	--	--	--	--	--	--
JUN									
27...	--	--	--	--	--	--	--	--	--
JUL									
25...	5200	5200	30	530	520	10	.0	.0	.0
AUG									
29...	--	--	--	--	--	--	--	--	--
SEP									
25...	--	--	--	--	--	--	--	--	--

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT									
06...	--	--	--	--	--	--	--	--	--
JAN									
27...	0	0	0	1	1	0	40	10	30
MAR									
02...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
APR									
25...	0	0	0	0	0	1	40	20	20
MAY									
26...	--	--	--	--	--	--	--	--	--
JUN									
27...	--	--	--	--	--	--	--	--	--
JUL									
25...	0	0	0	0	0	0	50	40	10
AUG									
29...	--	--	--	--	--	--	--	--	--
SEP									
25...	--	--	--	--	--	--	--	--	--

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT									
06...	--	--	--	--	--	--	--	--	--
JAN									
27...	--	--	--	--	--	--	--	12	--
MAR									
02...	--	--	--	--	--	--	--	9.1	.8
23...	--	--	--	--	--	--	--	11	1.1
APR									
25...	<4.8	4.1	11	5.9	9.2	5.4	.11	7.9	2.3
MAY									
26...	--	--	--	--	--	--	--	9.4	2.2
JUN									
27...	--	--	--	--	--	--	--	13	>2.5
JUL									
25...	--	--	--	--	--	--	--	9.8	2.5
AUG									
29...	--	--	--	--	--	--	--	10	2.7
SEP									
25...	--	--	--	--	--	--	--	12	1.9

DATE	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)
OCT								
06...	60	136	82	96	100	--	29	30
NOV								
03...	35	39	--	--	--	--	--	--
DEC								
13...	20	35	--	--	--	--	--	--
JAN								
27...	14	19	--	--	--	--	--	--
MAR								
02...	20	29	--	--	--	--	--	--
23...	34	96	--	--	--	--	--	--
APR								
01...	286	10700	78	95	100	--	1	3
17...	194	8430	82	97	100	--	3	7
25...	180	2610	66	95	100	--	4	12
MAY								
26...	150	1070	--	--	--	98	--	--
JUN								
27...	197	872	--	--	--	99	--	--
JUL								
25...	270	1080	--	--	--	99	--	--
AUG								
29...	112	154	--	--	--	97	--	--
SEP								
25...	162	217	--	--	--	99	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT							
06...	34	64	79	82	91	96	100
APR							
01...	8	20	48	79	91	99	100
17...	15	32	51	72	80	89	100
25...	24	44	78	96	97	98	100

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	625	250	600	600	710	720	730
2					---	700	270	600	600	700	750	750
3					---	710	250	580	650	700	800	740
4					---	700	230	580	640	680	800	720
5					---	690	225	575	610	700	830	750
6					---	710	250	590	640	675	780	730
7					---	710	250	600	640	625	760	710
8					---	700	260	600	620	645	740	690
9					---	725	270	590	630	640	730	670
10					---	725	260	630	640	630	750	660
11					---	700	270	610	630	700	720	680
12					---	675	270	600	680	580	740	630
13					---	700	260	600	650	460	730	675
14					---	655	300	600	650	500	760	660
15					755	690	260	625	660	490	725	650
16					750	655	340	630	650	515	730	650
17					755	650	380	630	620	530	750	650
18					745	650	450	625	580	550	740	780
19					750	650	495	630	590	610	755	700
20					---	650	500	640	600	600	750	550
21					690	630	525	650	650	620	755	590
22					750	590	540	640	700	700	760	550
23					745	570	540	630	725	690	700	560
24					725	560	525	600	700	710	640	600
25					700	490	520	600	730	740	660	730
26					650	350	530	605	780	750	620	760
27					650	450	555	620	760	755	585	750
28					650	325	550	640	770	720	570	800
29					---	280	560	610	700	730	620	820
30					---	260	550	610	700	710	630	840
31					---	250	---	600	---	700	650	---
MEAN					717	594	381	611	659	647	718	693

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	.5	2.0	14.0	19.0	25.0	24.0	25.0
2					---	.5	2.0	14.0	18.0	25.0	24.0	23.0
3					---	.5	2.0	15.0	20.0	27.0	23.0	22.5
4					---	.5	2.0	15.5	21.0	26.0	22.5	25.5
5					---	.5	2.0	16.0	21.0	27.0	19.5	27.0
6					---	1.0	3.0	16.0	20.5	27.5	23.0	28.0
7					---	1.0	4.0	16.0	20.5	25.0	24.5	27.0
8					---	1.0	5.0	14.0	20.5	24.5	24.5	27.0
9					---	1.0	5.0	15.0	21.0	25.0	25.0	26.5
10					---	1.0	5.0	15.5	20.5	24.5	25.5	25.0
11					---	1.0	5.0	16.0	20.0	24.5	26.0	25.0
12					---	1.0	5.0	15.5	21.0	25.0	26.5	19.0
13					---	1.0	5.0	15.0	21.0	23.5	28.0	17.0
14					---	1.0	7.0	16.0	23.0	24.5	29.0	18.0
15					.5	1.0	7.0	17.5	22.5	23.0	24.0	19.0
16					.5	1.0	7.0	18.0	23.5	25.5	25.0	17.0
17					.5	1.0	8.0	19.0	21.0	23.0	24.5	14.0
18					.5	1.0	6.0	19.5	22.0	24.5	24.0	15.5
19					.5	1.0	6.0	17.0	22.5	25.5	20.0	15.0
20					---	1.0	6.0	17.0	23.0	24.5	24.0	15.5
21					.5	1.0	6.0	19.0	22.5	24.5	25.0	15.0
22					.5	1.0	8.0	20.0	21.0	23.5	23.0	15.0
23					1.0	1.0	8.0	20.0	22.5	25.0	24.0	14.0
24					1.0	1.0	8.0	21.0	23.0	27.0	24.0	15.0
25					1.0	1.0	8.5	22.0	23.0	28.0	25.0	16.5
26					.5	1.0	9.0	23.0	23.0	27.0	24.0	16.5
27					.5	1.0	12.0	22.0	24.5	27.0	24.0	16.5
28					.5	1.0	13.0	21.0	26.0	26.0	24.0	16.0
29					---	1.0	13.0	22.0	26.0	26.0	23.0	15.0
30					---	2.0	14.0	21.0	25.0	26.0	24.0	15.0
31					---	2.0	---	20.5	---	26.0	24.0	---
MEAN					.5	1.0	6.5	18.0	22.0	25.5	24.0	19.5

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAR 2,78	MAY 26,78	JUN 27,78	JUL 25,78	AUG 29,78	SEP 25,78
TIME	1135	1045	1155	1345	1430	1620
TOTAL CELLS/ML	450	24000	8300	1600	8400	7000
DIVERSITY: DIVISION	0.7	1.3	1.4	0.8	1.5	0.5
.CLASS	0.9	1.3	1.4	0.8	1.5	0.5
..ORDER	1.7	1.5	1.7	0.9	2.1	0.6
...FAMILY	3.0	1.7	2.7	2.1	3.0	0.6
....GENUS	3.2	2.0	3.4	2.7	3.1	0.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	40	9	--	-	--	-	--	-	53	1	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	280	3	160	10	200	2	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	740	9	580#	37	1900#	23	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	160	1	230	3	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	280	1	46	1	18	1	53	1	*	0
....DICTYOSPHAERIUM	--	-	--	-	350	4	--	-	210	3	--	-
....KIRCHNERIELLA	--	-	--	-	140	2	--	-	--	-	--	-
....OOCYSTIS	--	-	1000	4	190	2	--	-	--	-	--	-
....SELENASTRUM	20	4	*	0	190	2	--	-	--	-	*	0
....TREUBARIA	--	-	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	480	2	--	-	140	9	--	-	--	-
....CRUCIGENIA	--	-	--	-	370	4	190	12	320	4	--	-
....SCENEDESMUS	33	7	1800	8	1700#	21	250#	16	240	3	280	4
....TETRASTRUM	--	-	160	1	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	160	2	43	1
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	*	0	69	1	--	-	66	1	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...CHAETOCERACEAE												
....CHAETOCEROS	27	6	--	-	--	-	--	-	--	-	--	-
...COSCINODISCACEAE												
....CYCLOTELLA	110#	25	1300	5	580	7	--	-	280	3	53	1
....MELOSIRA	27	6	1800	7	190	2	120	8	590	7	--	-
....STEPHANODISCUS	--	-	*	0	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	53	12	--	-	--	-	--	-	*	0	*	0
...FRAGILARIACEAE												
....FRAGILARIA	--	-	*	0	--	-	--	-	--	-	--	-
....SYNEDRA	20	4	*	0	*	0	--	-	66	1	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	*	0	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	*	0
....NAVICULA	33	7	*	0	--	-	--	-	130	2	53	1
....PINNULARIA	--	-	--	-	*	0	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	67	15	640	3	93	1	35	2	110	1	85	1
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	*	0	--	-	*	0	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	13	3	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	*	0	--	-	35	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAR 2,78		MAY 26,78		JUN 27,78		JUL 25,78		AUG 29,78		SEP 25,78	
TIME	1135		1045		1155		1345		1430		1620	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	16000#	66	2400#	28	--	-	790	9	--	-
....COCCOCHLORIS	--	-	--	-	320	4	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	530	6	--	-
....CYLINDROSPERMUM	--	-	--	-	280	3	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	2600#	31	6400#	91
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	*	0	--	-	18	1	*	0	--	-
....PHACUS	--	-	--	-	46	1	--	-	--	-	--	-
....TRACHELOMONAS	--	-	*	0	--	-	18	1	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass (μg/m²) Dry weight	Biomass (μg/m²) Ash weight	Chlorophyll a (μg/m²)	Chlorophyll b (μg/m²)	Biomass pigment ratio	Sampling method
Jun. 27	32	472	236	2.08	1.81	113	Polyethylene strip

05064900 BEAVER CREEK NEAR FINLEY, ND
(Hydrologic bench-mark station)

LOCATION.--Lat 47°35'40", long 97°42'18", in NE¼ sec.31, T.148 N., R.55 W., Steele County, Hydrologic Unit 09020109, on right bank 500 ft (150 m) upstream from bridge on county highway, and 7 mi (11 km) northeast of Finley.

DRAINAGE AREA.--160 mi² (410 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder and concrete broad-crested weir. Datum of gage is 1,170.08 ft (356.640 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

AVERAGE DISCHARGE.--14 years, 9.27 ft³/s (0.263 m³/s), 6,720 acre-ft/yr (8.29 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,320 ft³/s (37.4 m³/s) Apr. 9, 1969, gage height, 6.55 ft (1.996 m); maximum gage height, 9.70 ft (2.957 m) Mar. 14, 1966, backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 28	--	[a]*950	26.9	*7.28	2.219
Mar. 31	--	[a]350	9.91	--	--
Apr. 6	1630	342	9.68	4.75	1.448
Apr. 10	0830	193	5.47	4.23	1.289
Apr. 19	2145	55	1.56	3.43	1.045
Apr. 25	0945	52	1.47	3.41	1.039

No flow for several months.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.12	.40	.00	.00	.00	248	13	3.8	.00	.00	.00
2	.02	.12	.48	.00	.00	.00	174	10	.94	.00	.00	.00
3	.02	.12	.50	.00	.00	.00	86	7.8	.68	.00	.00	.00
4	.01	.09	.50	.00	.00	.00	93	6.1	.55	.00	.00	.00
5	.00	.09	.50	.00	.00	.00	248	5.1	.44	.00	.00	.00
6	.00	.09	.48	.00	.00	.00	314	4.2	.36	.00	.00	.00
7	.08	.09	.45	.00	.00	.00	236	3.9	.28	.00	.00	.00
8	.25	.20	.45	.00	.00	.00	136	6.2	.23	.00	.00	.00
9	.15	.50	.45	.00	.00	.00	93	6.9	.21	.00	.00	.00
10	.29	.45	.42	.00	.00	.00	129	5.2	.17	.00	.00	.00
11	.48	.43	.40	.00	.00	.00	73	4.4	.12	.00	.00	.35
12	.51	.39	.40	.00	.00	.00	61	3.9	.10	.00	.00	9.5
13	.49	.32	.40	.00	.00	.00	41	3.0	.06	.00	.00	1.5
14	.42	.31	.40	.00	.00	.00	36	2.3	.05	.00	.00	1.8
15	.35	.29	.40	.00	.00	.00	36	2.0	.06	.00	.00	2.5
16	.31	.27	.39	.00	.00	.00	37	1.8	.24	.00	.00	1.3
17	.27	.27	.39	.00	.00	.00	34	1.5	.18	.00	.00	.82
18	.21	.27	.39	.00	.00	.00	39	1.3	.20	.00	.00	.64
19	.21	.28	.39	.00	.00	.00	49	1.2	.17	.00	.00	.51
20	.24	.23	.24	.00	.00	.00	43	1.2	.12	.00	.00	.43
21	.18	.14	.26	.00	.00	1.0	43	1.2	.09	.00	.00	.35
22	.15	.10	.27	.00	.00	5.0	39	1.1	.04	.00	.00	.24
23	.12	.10	.22	.00	.00	9.0	39	1.1	.03	.00	.00	.18
24	.12	.10	.21	.00	.00	16	47	.87	.01	.00	.00	.15
25	.12	.10	.16	.00	.00	32	50	.75	.02	.00	.00	.12
26	.12	.10	.10	.00	.00	73	47	1.3	.05	.00	.00	.09
27	.12	.10	.05	.00	.00	137	40	1.1	.04	.00	.00	.07
28	.09	.10	.02	.00	.00	353	29	.77	.03	.00	.00	.07
29	.12	.20	.02	.00	---	266	22	.62	.01	.00	.00	.07
30	.12	.30	.01	.00	---	183	17	.54	.00	.00	.00	.05
31	.12	---	.00	.00	---	288	---	1.2	---	.00	.00	---
TOTAL	5.72	6.27	9.75	.00	.00	1363.00	2579	101.55	9.28	.00	.00	20.74
MEAN	.18	.21	.31	.000	.000	44.0	86.0	3.28	.31	.000	.000	.69
MAX	.51	.50	.50	.00	.00	353	314	13	3.8	.00	.00	9.5
MIN	.00	.09	.00	.00	.00	.00	17	.54	.00	.00	.00	.00
AC-FT	11	12	19	.00	.00	2700	5120	201	18	.00	.00	41

CAL YR 1977 TOTAL 65.97 MEAN .18 MAX 9.4 MIN .00 AC-FT 131
WTR YR 1978 TOTAL 4095.31 MEAN 11.2 MAX 353 MIN .00 AC-FT 8120

05064900 BEAVER CREEK NEAR FINLEY, ND--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
20...	1520	.15	1500	8.2	13.0	11.0	108	K150	54	54	650
DEC											
02...	1605	.48	1990	7.5	.0	10.5	75	60	50	100	880
19...	1315	.39	2000	7.7	.0	11.4	81	230	--	307	960
MAR											
23...	1215	9.2	270	--	.0	--	--	--	--	--	--
27...	1810	E147	335	--	.5	--	--	--	--	--	--
30...	1710	188	250	8.0	2.0	10.0	91	K2500	K46	820	110
APR											
04...	1030	89	365	--	.0	--	--	--	--	--	--
07...	1540	218	370	8.2	5.5	--	--	--	--	--	--
24...	1115	48	740	8.2	8.0	10.2	--	135	33	110	350
MAY											
23...	1015	1.0	1250	8.1	20.0	7.6	86	1500	1800	4200	560
JUN											
26...	1225	.05	1600	7.8	23.0	7.2	111	K3600	5300	1300	650
SEP											
13...	1710	.97	510	7.9	15.0	7.6	78	--	--	--	200
25...	0940	.13	1380	8.1	13.0	8.2	--	6900	260	410	550

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
20...	420	140	74	120	28	2.0	13	280	0	230
DEC										
02...	550	200	93	150	27	2.2	13	400	0	330
19...	650	--	100	140	24	2.0	13	380	--	310
MAR										
23...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
30...	32	28	10	11	17	.5	4.7	96	0	79
APR										
04...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
24...	200	88	31	33	17	.8	7.2	180	0	150
MAY										
23...	300	130	56	82	24	1.5	9.6	--	--	260
JUN										
26...	450	140	73	120	28	2.0	12	--	--	200
SEP										
13...	110	51	18	29	23	.9	8.7	--	--	89
25...	340	120	60	110	30	2.0	12	--	--	210

E - Estimated.

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05064900 BEAVER CREEK NEAR FINLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
20...	2.8	560	68	.1	3.5	1150	1120	1.56	.47	--
DEC										
02...	20	750	63	.2	18	1590	1480	2.16	2.06	.06
19...	12	--	--	--	--	--	1570	2.30	1.65	--
MAR										
23...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
30...	1.5	50	3.2	.1	10	167	164	.23	84.8	1.3
APR										
04...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
24...	1.8	250	6.3	.2	21	545	525	.74	70.6	.07
MAY										
23...	--	410	24	.2	12	917	1140	1.25	2.48	.01
JUN										
26...	--	610	49	.2	10	1180	1130	1.60	.16	.00
SEP										
13...	--	150	13	.1	13	352	336	.48	.92	.41
25...	--	520	50	.2	14	1080	1010	1.47	.38	.01

DATE	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT						
20...	.08	--	--	--	--	--
DEC						
02...	.09	--	--	--	--	--
MAR						
30...	.18	--	--	--	--	--
APR						
07...	--	4	100	3	10	14
24...	.06	--	--	--	--	--
MAY						
23...	.09	--	--	--	--	--
JUN						
26...	.13	--	--	--	--	--
SEP						
13...	.38	9	300	1	0	8
25...	.14	--	--	--	--	--

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)
APR							
07...	1500	140	.0	0	0	40	--
SEP							
13...	3100	150	--	--	0	20	<3.6

05064900 BEAVER CREEK NEAR FINLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	CYANIDE TOTAL (MG/L AS CN)
APR							
07...	--	--	--	--	--	--	.00
SEP							
13...	2.5	11	2.4	9.7	2.4	.06	.00

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT					
20...	4	.00	--	--	--
DEC					
02...	22	.03	--	--	--
19...	23	.02	--	--	--
MAR					
30...	178	90	57	87	100
APR					
04...	56	13	64	87	100
07...	54	32	60	78	100
24...	4	.52	--	--	--
MAY					
23...	12	.03	--	--	--
JUN					
26...	9	.00	--	--	--
SEP					
13...	73	.19	--	--	--
25...	4	.00	--	--	--

05066500 GOOSE RIVER AT HILLSBORO, ND

LOCATION.--Lat 47°24'20", long 97°03'40", in NW¼ sec.5, T.145 N., R.50 W., Traill County, Hydrologic Unit 09020109, on right bank 600 ft (180 m) upstream from Foogman Dam in Hillsboro, and 27.5 mi (44 km) upstream from mouth.

DRAINAGE AREA.--1,203 mi² (3,116 km²), of which 110 mi² (285 km²) is probably noncontributing.

PERIOD OF RECORD.--March 1931 to current year (no winter records 1932-34). Monthly discharge only for some periods, published in WSP 1308.

GAGE.--Water-stage recorder and masonry dam. Datum of gage is 879.52 ft (268.078 m) National Geodetic Vertical Datum of 1929. Sept. 26, 1941, to Oct. 27, 1965, at site 600 ft (180 m) downstream at same datum. See WSP 1728 or 1913 for history of changes prior to Sept. 26, 1941.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--45 years (1931-32, 1934-78), 65.1 ft³/s (1.844 m³/s), 47,160 acre-ft/yr (58.1 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s), 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Apr. 19, 1950; maximum gage height, 14.94 ft (4.554 m) Apr. 19, 1950; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,800 ft³/s (108 m³/s) Apr. 1, gage height, 10.56 ft (3.219 m), backwater from ice; only peak above base of 200 ft³/s (5.7 m³/s); minimum daily, 0.38 ft³/s (0.011 m³/s) Oct. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.8	8.0	5.6	3.0	1.4	3630	164	33	29	2.5	2.4
2	3.8	3.8	8.0	5.6	3.0	1.4	3390	147	33	22	2.0	2.4
3	4.4	3.8	8.0	5.6	3.0	1.4	2840	132	33	22	1.5	2.4
4	5.5	3.8	8.0	5.6	2.8	1.4	2200	121	33	19	1.0	2.4
5	3.0	3.8	5.6	5.6	2.8	1.4	1500	112	33	17	.94	2.4
6	1.5	3.8	6.8	4.7	2.8	1.4	1460	106	33	16	.90	2.4
7	2.8	3.8	6.8	4.7	2.7	1.4	1540	99	30	15	.90	1.9
8	12	9.4	6.8	4.7	2.7	1.4	1610	92	28	14	.80	1.4
9	6.8	17	6.8	4.7	2.6	1.4	1650	92	26	14	.80	1.2
10	4.0	17	6.8	4.7	2.6	1.4	1470	92	24	12	.80	.94
11	3.0	17	6.8	4.7	2.6	1.4	1140	92	22	12	.70	1.3
12	1.4	17	6.8	4.7	2.6	1.4	870	94	22	11	.70	3.1
13	1.4	15	6.8	4.7	2.6	1.4	722	98	22	9.4	.60	3.1
14	1.4	15	6.8	4.7	2.4	1.4	590	96	20	8.0	.60	2.4
15	1.4	15	6.8	3.8	1.4	1.4	475	83	17	6.8	3.0	2.4
16	1.4	15	6.8	3.8	1.4	1.4	407	82	33	6.8	1.0	1.4
17	.62	18	7.1	3.8	1.4	1.4	356	75	128	6.8	.80	3.1
18	.38	18	6.8	3.8	1.4	1.4	311	65	106	6.8	.61	18
19	4.7	20	6.8	3.8	1.4	3.5	296	59	74	9.4	.62	19
20	8.0	26	6.8	3.1	1.4	7.1	263	55	46	5.6	.62	14
21	8.0	22	6.5	3.1	1.4	19	246	52	34	5.5	.62	14
22	8.0	20	6.5	3.1	1.4	54	237	50	26	5.5	.45	14
23	8.0	18	6.5	3.1	1.4	145	228	47	21	5.0	.93	12
24	6.8	17	6.5	3.1	1.4	185	216	47	15	5.0	.94	10
25	4.7	12	6.0	3.1	1.4	235	208	50	14	4.5	.94	6.6
26	4.7	9.4	5.6	3.1	1.4	320	204	45	9.4	4.0	3.3	5.4
27	4.7	9.4	5.6	3.0	1.4	415	204	42	22	3.5	2.7	4.2
28	4.0	9.4	5.6	3.0	1.4	820	204	37	42	3.5	2.4	3.1
29	3.8	9.4	5.6	3.0	---	1790	201	37	33	3.1	2.4	3.1
30	3.8	8.0	5.6	3.0	---	2410	185	35	30	3.0	2.4	3.1
31	3.8	---	5.6	3.0	---	2960	---	33	---	2.5	2.4	---
TOTAL	131.60	380.6	205.5	126.0	57.8	9388.8	28853	2431	1042.4	307.7	40.87	163.14
MEAN	4.25	12.7	6.63	4.06	2.06	303	962	78.4	34.7	9.93	1.32	5.44
MAX	12	26	8.0	5.6	3.0	2960	3630	164	128	29	3.3	19
MIN	.38	3.8	5.6	3.0	1.4	1.4	185	33	9.4	2.5	.45	.94
AC-FT	261	755	408	250	115	18620	57230	4820	2070	610	81	324

CAL YR 1977 TOTAL 1980.06 MEAN 5.42 MAX 76 MIN .00 AC-FT 3930
WTR YR 1978 TOTAL 43128.41 MEAN 118 MAX 3630 MIN .38 AC-FT 85550

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, ND

LOCATION.--Lat 47°56'34", long 97°03'10", in SW¼NE¼ sec.33, T.152 N., R.50 W., Grand Forks County, Hydrologic Unit 09020301, on left bank on second floor of old sewage plant in Grand Forks, 2.3 mi (3.7 km) downstream from Red Lake River, and at mile 295.7 (475.8 km).

DRAINAGE AREA.--30,100 mi² (78,000 km²), approximately, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--April 1882 to current year. Monthly discharge only prior to May 1901, published in WSP 1308.

REVISED RECORDS.--WSP 855: 1936(M). WSP 1115: 1942. WSP 1175: 1897(M). WSP 1388: 1904, 1914-15, 1917-19, 1921-22, 1927, 1950. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 778.35 ft (237.241 m) National Geodetic Vertical Datum of 1929. Nov. 3, 1933, to Apr. 13, 1965, water-stage recorder 0.3 mi (0.5 km) upstream at present datum. See WSP 1728 or 1913 for history of changes prior to Nov. 3, 1933.

REMARKS.--Records good.

AVERAGE DISCHARGE.--96 years, 2,522 ft³/s (71.42 m³/s), 1,827,000 acre-ft/yr (2.25 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 80,000 ft³/s (2,270 m³/s) Apr. 10, 1897, gage height, 50.2 ft (15.30 m), site and datum then in use, from rating curve extended above 54,000 ft³/s (1,530 m³/s); minimum, 1.8 ft³/s (0.051 m³/s) Sept. 2, 1977, caused by unusual regulation during repair of dam at Grand Forks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 54,200 ft³/s (1,530 m³/s) Apr. 11, gage height, 45.73 ft (13.939 m); minimum, 650 ft³/s (18.4 m³/s) Sept. 6, gage height, 4.20 ft (1.280 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1400	917	1540	1340	1120	1110	16400	8000	3580	2540	1860	1330
2	1320	911	1560	1340	1120	1120	19500	7600	3410	2430	1690	1110
3	1260	911	1570	1340	1100	1120	22200	7300	3470	2500	1920	1000
4	1220	917	1580	1350	1100	1120	25500	6900	3610	2230	1900	935
5	1190	914	1560	1350	1120	1120	29500	6400	3590	2210	1860	887
6	1140	911	1550	1340	1140	1120	33100	6100	3560	2590	1840	735
7	1110	917	1460	1330	1160	1120	41000	5900	3270	2740	1790	695
8	1130	968	1400	1330	1160	1140	47500	5600	3150	3000	1740	718
9	1070	1040	1340	1320	1170	1150	51500	5650	3080	3160	1680	720
10	1090	1100	1260	1310	1190	1160	53100	5500	3010	3070	1590	720
11	1410	1130	1220	1300	1170	1200	54100	5450	2960	3020	1550	758
12	1660	980	1190	1280	1130	1210	53600	5300	2800	3160	1500	959
13	1650	742	1180	1280	1110	1210	52000	5200	2770	3660	1510	950
14	1540	722	1180	1260	1110	1220	49100	5130	2790	4150	1430	868
15	1430	939	1180	1260	1110	1250	46000	4860	2790	4520	1500	821
16	1370	1170	1190	1260	1110	1300	42200	4630	3190	4660	1400	851
17	1300	1300	1230	1260	1110	1300	38000	4510	3610	4500	1340	959
18	1260	1310	1270	1260	1110	1320	33900	4350	3920	4140	1210	1040
19	1210	1220	1290	1300	1100	1350	30500	4230	4410	3790	1070	1140
20	1210	1140	1320	1320	1060	1380	27400	4070	4150	3420	974	1340
21	1220	1110	1340	1320	1060	1440	24400	3940	3570	3250	981	1360
22	1230	1100	1390	1300	1060	1600	21000	3840	3200	3220	926	1260
23	1210	1100	1400	1280	1060	1650	18000	3790	2820	3140	947	1100
24	1170	1130	1400	1280	1090	1800	14900	3900	2550	2970	935	1010
25	1110	1180	1380	1260	1100	2000	12900	3990	2370	2760	908	968
26	1080	1270	1380	1270	1100	2700	11300	3870	2440	2650	1030	993
27	1040	1290	1370	1240	1100	4200	10000	3620	2480	2630	1080	1020
28	1020	1320	1370	1230	1100	5700	9300	3480	2600	2520	1120	1020
29	974	1380	1360	1200	---	8100	8750	3460	2840	2390	1150	971
30	950	1470	1360	1170	---	10800	8400	3720	2770	2180	1300	923
31	932	---	1350	1150	---	13600	---	3800	---	2010	1400	---
TOTAL	37906	32509	42170	39830	31170	77630	905350	154290	94520	95030	43551	29174
MEAN	1223	1084	1360	1285	1113	2504	30180	4977	3151	3065	1405	973
MAX	1660	1470	1580	1350	1190	13600	54100	8000	4410	4660	1920	1360
MIN	932	722	1180	1150	1060	1110	8400	3460	2370	2010	908	695
AC-FT	75190	64480	83640	79000	61830	154000	1796000	306000	187500	188500	86300	57880

CAL YR 1977 TOTAL 266217.8 MEAN 729 MAX 2150 MIN 1.8 AC-FT 528000
WTR YR 1978 TOTAL 1583135.0 MEAN 4337 MAX 54100 MIN 695 AC-FT 3140000

05083500 RED RIVER OF THE NORTH AT OSLO, MN
(National stream-quality accounting network station)
(Pesticide Station)

LOCATION.--Lat 48°11'40", long 97°08'30", in SW¼SW¼ sec.36, T.155 N., R.51 W., in Walsh County, Hydrologic Unit 09020306, on interstate highway bridge at Oslo, and at mile 271.2 (436.4 km).

DRAINAGE AREA.--31,200 mi² (80,800 km²) approximately, including 3,800 mi² (9,840 km²) in closed basins.

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to January 1978 (discontinued).
WATER TEMPERATURES: October 1975 to January 1978 (discontinued).

INSTRUMENTATION.--Water-quality monitor from December 1974 to January 1978.

REMARKS.--Discharge obtained by hydrographic comparison of stations 05082500 Red River of the North at Grand Forks and 05092000 Red River of the North at Drayton.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 28...	1130	1100	640	8.5	8.5	11.0	97	25	150	310	76
DEC 13...	1000	1300	610	7.7	.5	10.8	77	K680	340	300	49
APR 11...	1245	56100	260	--	4.0	--	--	--	--	--	--

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT 28...	68	33	27	16	.7	7.9	280	0	230	1.4
DEC 13...	67	33	23	14	.6	5.0	310	0	250	9.9
APR 11...	--	--	--	--	--	--	--	--	--	--

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 28...	110	23	.2	7.4	418	415	.57	1240	.01	.00
DEC 13...	76	20	.2	13	393	390	.53	1380	.39	.53
APR 11...	--	--	--	--	--	--	--	--	--	--

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
OCT 28...	.74	.16	.08	3	100	100	0	0	5
DEC 13...	1.0	.25	.23	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 28...	0	10	<50	<50	0	<10	<3	7
DEC 13...	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)
OCT 28...	880	100	7	100	80	20	.0	0
DEC 13...	--	--	--	--	--	--	--	--

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
OCT 28...	<10	<10	0	20	0	30	9.7	1.9
DEC 13...	--	--	--	--	--	--	12	1.2

DATE	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
OCT 28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Whole water ND - Not detected at 0.01 μg/L level.
Bed material ND - Not detected at 0.1 μg/mg level.

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)
OCT 28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)
OCT 28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COOL- SON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)
OCT 28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 28...	ND	ND	36	107	98
DEC 13...	--	--	16	56	64

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	922	906	664	647	714	687	636	630				
2	912	852	702	667	690	671	646	639				
3	849	775	719	697	668	652	654	647				
4	772	756	719	709	656	636	663	657				
5	756	729	749	709	634	627	667	651				
6	729	700	781	751	640	629	654	648				
7	700	693	766	748	629	621	---	---				
8	714	693	748	716	625	618	---	---				
9	717	707	716	708	618	610	---	---				
10	714	700	726	661	610	602	---	---				
11	729	707	758	680	602	598	---	---				
12	759	729	775	689	608	598	---	---				
13	753	740	844	750	612	608	---	---				
14	788	748	878	844	615	613	---	---				
15	788	783	885	841	616	612	---	---				
16	783	775	834	781	617	613	---	---				
17	775	748	733	698	618	612	---	---				
18	748	729	700	662	613	607	---	---				
19	737	724	702	631	614	606	---	---				
20	753	740	705	684	617	613	---	---				
21	756	729	676	610	621	611	---	---				
22	729	714	685	625	620	612	---	---				
23	717	698	645	636	613	600	---	---				
24	703	688	647	629	610	599	---	---				
25	688	670	671	646	611	600	---	---				
26	686	668	673	664	610	601	---	---				
27	665	646	694	675	617	609	---	---				
28	649	640	690	687	610	599	---	---				
29	658	647	694	687	623	602	---	---				
30	658	653	719	692	641	624	---	---				
31	660	653	---	---	644	631	---	---				
MONTH	922	640	885	610	714	598	667	630				

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.0	13.0	9.5	9.0	.5	.0	.5	.0				
2	14.0	12.5	9.0	8.5	.5	.0	.5	.0				
3	14.0	12.5	8.5	8.0	.5	.5	.0	.0				
4	16.5	12.5	8.5	7.5	.5	.0	.0	.0				
5	12.5	12.5	8.0	7.5	.5	.0	.0	.0				
6	12.0	12.0	9.0	8.0	.5	.0	.0	.0				
7	12.0	10.5	9.0	8.5	.5	.5	---	---				
8	10.5	9.5	9.0	7.0	.5	.0	---	---				
9	10.0	9.5	7.0	5.0	.5	.5	---	---				
10	10.0	9.0	5.0	4.5	1.0	.5	---	---				
11	9.5	8.5	4.5	3.5	.5	.5	---	---				
12	9.0	8.0	3.5	2.5	.5	.5	---	---				
13	9.5	8.5	2.5	2.0	.5	.5	---	---				
14	9.0	8.5	2.5	2.0	1.0	.5	---	---				
15	9.0	8.0	2.5	1.5	.5	.5	---	---				
16	9.5	8.0	1.5	1.0	1.0	.5	---	---				
17	9.0	8.5	1.0	.5	.5	.0	---	---				
18	9.0	8.0	1.0	.0	.5	.0	---	---				
19	9.5	8.5	.5	.0	.5	.0	---	---				
20	9.5	8.5	.0	.0	.5	.0	---	---				
21	9.5	8.5	.5	.0	.5	.0	---	---				
22	8.5	8.0	.5	.0	.5	.0	---	---				
23	8.5	7.5	.5	.0	.5	.0	---	---				
24	8.5	8.0	.5	.0	.5	.0	---	---				
25	9.0	7.5	.5	.0	.0	.0	---	---				
26	9.0	8.5	.5	.0	.0	.0	---	---				
27	9.0	8.5	.5	.0	.5	.0	---	---				
28	9.0	8.0	.5	.0	.5	.0	---	---				
29	9.0	8.0	.5	.0	.5	.0	---	---				
30	10.0	9.0	.5	.0	.0	.0	---	---				
31	10.0	9.5	---	---	.0	.0	---	---				
MONTH	16.5	7.5	9.5	.0	1.0	.0	.5	.0				

05083500 RED RIVER OF THE NORTH AT OSLO, MN--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO OCTOBER 1977

DATE	OCT 28,77
TIME	1130
TOTAL CELLS/ML	13000
DIVERSITY: DIVISION	1.5
.CLASS	1.5
..ORDER	1.9
...FAMILY	2.3
....GENUS	3.0

ORGANISM	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....CHLOROCOCCUM	420	3
...OOCYSTACEAE		
....ANKISTRODESMUS	920	7
...SCENEDESMACEAE		
....ACTINASTRUM	340	3
....CRUCIGENIA	670	5
....SCENEDESMUS	1300	10
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	250	2
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	5000#	39
....MELOSIRA	250	2
....SKELETONEMA	1200	9
..PENNALES		
...ACHNANTHACEAE		
....COCCONEIS	84	1
...FRAGILARIACEAE		
....FRAGILARIA	84	1
...NAVICULACEAE		
....NAVICULA	84	1
...NITZSCHIACEAE		
....NITZSCHIA	170	1
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	1300	10
..HORMOGONALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	590	5
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	170	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$)		Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 28	31	0.000	0.000	1.14	0.028	--	Polyethylene strip

05083600 MIDDLE BRANCH FOREST RIVER NEAR WHITMAN, ND

LOCATION.--Lat 48°14'50", long 98°07'00", in SE¼NW¼ sec.16, T.155 N., R.58 W., Walsh County, Hydrologic Unit 09020308, 150 ft (46 m) downstream from bridge on State Highway 35, and 6 mi (10 km) north of Whitman.

DRAINAGE AREA.--47.7 mi^2 (123.5 km^2), of which 8.8 mi^2 (22.8 km^2) is noncontributing.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,510 ft (460.2 m) from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--18 years, 2.90 ft^3/s (0.082 m^3/s), 2,100 acre-ft/yr (2.59 hm^3/yr); median of yearly mean discharges, 2.1 ft^3/s (0.059 m^3/s), 1,500 acre-ft/yr (1.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 984 ft^3/s (27.9 m^3/s) May 19, 1974, gage height, 7.11 ft (2.167 m); no flow for many months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 6	1800	--	--	a*6.22	1.896	May 25	2000	226	6.40	5.48	1.670
Apr. 9	0400	*282	7.99	5.82	1.774	May 31	2300	95	2.69	4.73	1.442

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.00	.00	.00	.00	.00	40	.38	27	.01	.00	.16
2	.11	.00	.00	.00	.00	.00	50	.27	8.1	.00	.00	.10
3	.08	.00	.00	.00	.00	.00	55	.20	3.7	.00	.00	.07
4	.07	.00	.00	.00	.00	.00	70	.34	1.4	.08	.00	.00
5	.04	.00	.00	.00	.00	.00	75	.16	.51	1.2	.00	.00
6	.02	.00	.00	.00	.00	.00	140	.13	.38	.32	.00	.00
7	.03	.00	.00	.00	.00	.00	165	.17	.22	.14	.00	.00
8	.15	.00	.00	.00	.00	.00	140	.51	.14	14	.00	.00
9	.24	.00	.00	.00	.00	.00	240	.69	.08	42	.00	.00
10	.17	.00	.00	.00	.00	.00	145	.69	.03	20	.00	.00
11	.20	.00	.00	.00	.00	.00	86	.60	.02	11	.00	.00
12	.15	.00	.00	.00	.00	.00	52	.44	.00	5.5	.00	.01
13	.10	.00	.00	.00	.00	.00	25	.32	.00	5.0	.00	.16
14	.08	.00	.00	.00	.00	.00	19	.25	.00	4.0	.00	.32
15	.06	.00	.00	.00	.00	.00	20	.21	.00	3.0	.00	.54
16	.04	.00	.00	.00	.00	.00	20	.11	.00	2.0	.00	.40
17	.03	.00	.00	.00	.00	.00	30	.04	.00	1.2	.00	.30
18	.03	.00	.00	.00	.00	.00	21	.02	.00	.80	.00	.22
19	.03	.00	.00	.00	.00	.00	11	.03	.00	.47	.00	.17
20	.03	.00	.00	.00	.00	.00	6.7	.03	.00	4.6	.00	.12
21	.03	.00	.00	.00	.00	.00	9.8	.04	.00	4.6	.00	.09
22	.03	.00	.00	.00	.00	.00	6.9	.10	.00	1.7	.00	.08
23	.03	.00	.00	.00	.00	.00	8.8	.10	.00	.56	.00	.07
24	.02	.00	.00	.00	.00	.00	7.9	.08	.00	.32	.00	.05
25	.02	.00	.00	.00	.00	.00	9.1	51	.00	.16	.00	.03
26	.02	.00	.00	.00	.00	.00	6.9	27	.00	.11	.00	.03
27	.02	.00	.00	.00	.00	.00	4.2	6.7	.00	.13	.28	.02
28	.00	.00	.00	.00	.00	1.0	2.0	2.2	.00	.08	2.8	.01
29	.00	.00	.00	.00	---	15	1.4	.66	.20	.04	1.0	.00
30	.00	.00	.00	.00	---	30	.92	.38	.22	.03	.40	.00
31	.00	---	.00	.00	---	40	---	5.6	---	.01	.23	---
TOTAL	1.90	.00	.00	.00	.00	86.00	1468.62	99.45	42.00	123.06	4.71	2.95
MEAN	.061	.000	.000	.000	.000	2.77	49.0	3.21	1.40	3.97	.15	.098
MAX	.24	.00	.00	.00	.00	40	240	51	27	42	2.8	.54
MIN	.00	.00	.00	.00	.00	.00	.92	.02	.00	.00	.00	.00
AC-FT	3.8	.00	.00	.00	.00	171	2910	197	83	244	9.3	5.9

CAL YR 1977 TOTAL 247.92 MEAN .68 MAX 25 MIN .00 AC-FT 492
WTR YR 1978 TOTAL 1828.69 MEAN 5.01 MAX 240 MIN .00 AC-FT 3630

05084000 FOREST RIVER NEAR FORDVILLE, ND

LOCATION.--Lat 48°11'50", long 97°43'49", on line between secs.32 and 33, T.155 N., R.55 W., Walsh County, Hydrologic Unit 09020308, on right bank 50 ft (15 m) upstream from highway bridge, 0.5 mi (0.8 km) downstream from South Branch, and 3 mi (5 km) southeast of Fordville.

DRAINAGE AREA.--456 mi² (1,181 km²), of which about 120 mi² (311 km²) is probably noncontributing.

PERIOD OF RECORD.--April 1940 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,035 ft (315 m), from topographic map. Prior to July 21, 1951, nonrecording gage at site 50 ft (15 m) downstream at same datum.

REMARKS.--Records good except those for the winter period and Sept. 9-30, which are fair. Some regulation of high flows by temporary retention in several retarding basins above station. Retarding basins have a combined capacity of about 14,000 acre-ft (17.3 hm³).

AVERAGE DISCHARGE.--38 years, 37.7 ft³/s (1.068 m³/s), 27,300 acre-ft/yr (33.7 hm³/yr); median of yearly mean discharges, 36 ft³/s (1.02 m³/s), 26,100 acre-ft/yr (32 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s (464 m³/s) Apr. 18, 1950, gage height, 14.48 ft (4.414 m), from floodmark, from rating curve extended above 5,600 ft³/s (159 m³/s) on basis of contracted-opening and slope-area measurements of peak flow; no flow Apr. 1-13, Sept. 3, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 31	1630	990	28.0	5.12	1.561
Apr. 6	2400	*1,200	34.0	*5.50	1.676

Minimum, 2.0 ft³/s (0.057 m³/s), Feb. 19-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	8.9	7.5	4.0	2.5	4.5	650	72	48	24	4.4	5.5
2	22	8.3	7.5	3.9	2.5	5.0	392	61	46	22	4.2	4.4
3	20	8.0	7.5	3.5	2.5	5.2	331	56	44	18	3.6	3.6
4	21	8.0	7.5	3.3	2.5	5.5	294	50	46	16	3.6	3.3
5	20	8.0	7.5	3.3	2.5	5.8	421	46	44	16	3.6	3.3
6	19	8.3	7.5	3.3	2.5	6.0	764	43	42	16	3.6	3.9
7	20	9.1	7.5	3.3	2.3	6.4	807	40	43	15	3.9	5.5
8	23	10	7.5	3.3	2.3	6.5	498	46	75	16	5.1	6.2
9	21	11	7.5	3.3	2.3	6.5	573	50	83	45	5.5	6.0
10	18	10	7.5	3.3	2.3	8.0	570	48	82	62	6.6	6.0
11	15	9.5	7.5	3.0	2.3	10	491	45	77	46	6.6	6.5
12	13	9.0	7.5	3.0	2.3	10	485	40	76	43	6.2	7.0
13	13	9.0	7.4	3.0	2.3	10	446	37	73	36	6.9	7.0
14	13	9.0	7.4	3.0	2.3	10	408	35	70	30	7.2	7.5
15	12	8.0	7.0	3.0	2.2	9.5	370	33	66	26	8.0	7.5
16	12	7.5	6.5	3.0	2.2	9.0	350	32	63	22	8.3	8.0
17	12	7.5	6.0	3.0	2.2	8.0	328	31	62	18	8.3	7.0
18	11	7.0	6.0	3.0	2.2	7.0	315	30	58	17	8.3	7.0
19	9.9	6.5	5.5	3.0	2.0	6.5	269	28	56	18	8.0	7.0
20	9.5	5.0	5.0	3.0	2.0	6.5	249	28	53	18	6.9	7.0
21	9.5	6.5	5.0	2.8	2.0	6.5	225	28	52	14	6.9	7.0
22	8.7	7.0	4.5	2.8	2.0	6.5	199	28	48	12	6.9	6.5
23	8.3	7.0	4.5	2.5	2.0	7.5	179	28	46	11	9.5	6.5
24	8.3	7.0	4.5	2.5	2.0	7.5	162	28	42	11	8.7	6.0
25	8.3	7.0	4.0	2.5	2.5	9.0	145	28	38	9.9	8.7	6.5
26	8.0	7.0	4.0	2.5	3.0	25	130	55	37	9.5	22	7.0
27	8.0	7.0	4.0	2.5	3.5	200	115	73	36	8.7	25	7.0
28	8.3	7.5	4.0	2.5	4.0	370	108	64	33	7.2	37	7.0
29	8.0	7.5	4.0	2.5	---	500	98	61	31	6.6	14	7.0
30	8.0	7.5	4.0	2.5	---	435	86	56	28	6.6	9.1	7.0
31	8.0	---	4.0	2.5	---	650	---	52	---	6.2	7.2	---
TOTAL	417.8	238.6	187.3	92.6	67.2	2362.9	10478	1352	1598	626.7	273.8	186.7
MEAN	13.5	7.95	6.04	2.99	2.40	76.2	349	43.6	53.3	20.2	8.83	6.22
MAX	23	11	7.5	4.0	4.0	650	807	73	83	62	37	8.0
MIN	8.0	5.0	4.0	2.5	2.0	4.5	86	28	28	6.2	3.6	3.3
AC-FT	829	473	372	184	133	4690	20780	2680	3170	1240	543	370

CAL YR 1977 TOTAL 3497.5 MEAN 9.58 MAX 56 MIN 1.3 AC-FT 6940
WTR YR 1978 TOTAL 17881.6 MEAN 49.0 MAX 807 MIN 2.0 AC-FT 35470

05085000 FOREST RIVER AT MINTO, ND

LOCATION.--Lat 48°16'10", long 97°22'10", in SE¼ sec.31, T.156 N., R.52 W., Walsh County, Hydrologic Unit 09020308, on right bank 30 ft (9 m) upstream from dam in Minto, 150 ft (45 m) upstream from Burlington Northern Railway bridge, and 900 ft (270 m) east of U.S. Highway 81.

DRAINAGE AREA.--740 mi^2 (1,920 km^2), of which about 120 mi^2 (310 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1944 to current year.

REVISED RECORDS.--WSP 1438: 1948-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 806.95 ft (245.958 m) National Geodetic Vertical Datum of 1929. Prior to July 15, 1954, nonrecording gage at site 400 ft (120 m) upstream at same datum.

REMARKS.--Records fair. Occasionally during high stages, particularly when the channel is filled with snow, overflow occurs 0.5 mi (0.8 km) below the municipality of Forest River and bypasses the gage 3 mi (5 km) south of Minto and flows into Lake Ardoch. Bypass flow is not included in computation of discharge record for station at Minto.

AVERAGE DISCHARGE.--34 years, 49.5 ft^3/s (1.402 m^3/s), 35,860 acre-ft/yr (44.2 hm^3/yr); median of yearly mean discharges, 46 ft^3/s (1.30 m^3/s), 33,300 acre-ft/yr (41 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,600 ft^3/s (470 m^3/s) Apr. 18, 1950, gage height, 11.80 ft (3.597 m) from floodmarks, from rating curve extended above 7,200 ft^3/s (204 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times each year 1945-47, 1953-55, 1959-64.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 31	2330	[a]*1,600	45.3	[b]*6.52	1.987	Apr. 8	--	1,290	36.5	[a]4.34	1.323

Minimum daily, 0.10 ft^3/s (0.003 m^3/s) Jan. 30 to Feb. 9, Mar. 19, 20.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	8.6	2.0	1.3	.10	.20	1220	112	72	19	11	17
2	7.7	6.8	1.6	1.3	.10	.20	1100	103	70	16	10	14
3	7.7	7.7	1.4	1.3	.10	.20	900	98	63	14	9.5	11
4	7.7	6.8	1.2	1.3	.10	.20	550	87	53	17	8.6	9.5
5	6.8	6.0	1.2	1.3	.10	.20	495	82	54	19	8.6	7.3
6	6.8	7.7	1.2	1.3	.10	.20	790	75	53	15	8.0	5.7
7	7.7	7.7	1.2	1.3	.10	.20	975	75	47	12	7.3	4.4
8	8.6	7.7	1.2	1.3	.10	.20	1150	75	43	20	5.9	3.7
9	10	7.7	1.2	1.3	.10	.20	802	80	59	70	5.2	3.4
10	12	7.7	1.2	1.3	.20	.20	683	72	91	30	5.3	3.4
11	12	6.8	1.2	1.3	.20	.20	639	67	93	53	4.6	4.0
12	12	6.0	1.2	1.3	.20	.20	551	61	90	54	4.6	10
13	12	5.5	1.2	1.3	.20	.20	515	56	85	41	4.0	16
14	10	5.0	1.2	1.3	.20	.15	465	51	85	39	4.0	14
15	9.5	5.0	1.2	1.3	.20	.15	425	46	82	37	7.7	15
16	10	5.0	1.2	1.3	.20	.15	400	42	82	33	7.7	15
17	9.1	4.8	1.2	1.3	.20	.15	372	37	77	30	7.7	11
18	9.5	4.5	1.2	1.2	.20	.15	344	32	72	28	6.0	10
19	8.6	4.5	1.3	1.0	.20	.10	339	30	67	31	4.6	9.5
20	10	4.2	1.3	.90	.20	.10	310	28	65	33	4.0	9.5
21	11.	4.0	1.3	.80	.20	1.5	279	26	60	29	3.4	9.5
22	9.5	3.0	1.3	.70	.20	1.5	242	28	58	26	3.4	8.6
23	10	2.8	1.3	.60	.20	2.5	225	28	55	24	3.4	7.7
24	8.6	2.6	1.3	.50	.20	4.0	194	26	51	22	3.4	6.8
25	8.6	2.5	1.3	.45	.20	6.0	181	26	46	20	4.0	6.8
26	6.8	2.5	1.3	.40	.20	15	168	44	41	18	8.6	6.0
27	8.6	2.5	1.3	.35	.20	30	155	28	36	16	7.7	6.0
28	7.7	2.5	1.3	.30	.20	70	140	58	33	16	11	5.3
29	7.7	2.5	1.3	.20	---	250	131	60	28	14	17	4.6
30	7.7	2.5	1.3	.10	---	525	123	58	24	12	35	4.6
31	7.7	---	1.3	.10	---	1400	---	58	---	11	22	---
TOTAL	280.2	153.1	39.9	29.70	4.70	2309.05	14863	1749	1835	819	253.2	259.3
MEAN	9.04	5.10	1.29	.96	.17	74.5	495	56.4	61.2	26.4	8.17	8.64
MAX	12	8.6	2.0	1.3	.20	1400	1220	112	93	70	35	17
MIN	6.8	2.5	1.2	.10	.10	.10	123	26	24	11	3.4	3.4
AC-FT	556	304	79	59	9.3	4580	29480	3470	3640	1620	502	514

CAL YR 1977 TOTAL 3112.76 MEAN 8.53 MAX 64 MIN .00 AC-FT 6170
WTR YR 1978 TOTAL 22595.15 MEAN 61.9 MAX 1400 MIN .10 AC-FT 44820

05088500 HOMME LAKE NEAR PARK RIVER, ND

LOCATION.--Lat 48°24'20", long 97°47'10", in SE¼NW¼ sec.19, T.157 N., R.55 W., Walsh County, Hydrologic Unit 09020310, at Homme Dam on South Branch Park River, and 2 mi (3 km) west of town of Park River.

DRAINAGE AREA.--226 mi^2 (585 km^2).

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earth-fill dam, 865 ft (264 m) long; storage began in September 1949, dam completed in October 1950. Usable capacity between invert of outlet, elevation, 1,048.0 ft (319.43 m), and crest of spillway, elevation, 1,080.0 ft (329.18 m), is 3,550 acre-ft (4.38 hm^3). Dead storage is 100 acre-ft (0.12 hm^3). Low flows are controlled by two sluice gates 3 x 5 ft (0.914 x 1.524 m). The spillway, which is 150 ft (46 m) long, is uncontrolled. The records herein represent total contents. The reservoir is operated for flood control, water supply, and pollution abatement during low-flow periods.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,500 acre-ft (5.55 hm^3) Apr. 11, 1965, elevation, 1,083.70 ft (330.312 m); minimum since first reaching spillway level, 184 acre-ft (0.23 hm^3) Feb. 8, 1952, elevation, 1,051.22 ft (320.412 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents during year, 4,260 acre-ft (5.25 hm^3) Apr. 7, elevation, 1,082.73 ft (330.016 m); minimum, 2,240 acre-ft (2.76 hm^3) Mar. 27, elevation, 1,072.40 ft (326.868 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,076.02	2,900	--
Oct. 31	1,076.76	3,040	+140
Nov. 30	1,076.59	3,010	-30
Dec. 31	1,075.51	2,810	-200
CAL YR 1977	--	--	+470
Jan. 31	1,074.38	2,590	-220
Feb. 28	1,073.02	2,330	-260
Mar. 31	1,076.20	2,940	+610
Apr. 30	1,080.00	3,660	+720
May 31	1,080.10	3,680	+20
June 30	1,079.83	3,630	-50
July 31	1,079.90	3,640	+10
Aug. 31	1,079.15	3,500	-140
Sept. 30	1,079.18	3,500	0
WTR YR 1978	--	--	+600

05089000 SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND

LOCATION.--Lat 48°24'07", long 97°46'55", in SE¼ sec.19, T.157 N., R.55 W., Walsh County, Hydrologic Unit 09020310, on right bank 0.5 mi (0.8 km) downstream from Homme Dam, and 2 mi (3 km) west of town of Park River.

DRAINAGE AREA.--226 mi² (585 km²).

PERIOD OF RECORD.--October 1949 to current year. Monthly discharge only for October and November 1949, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft (304.800 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Homme Lake (station 05088500).

AVERAGE DISCHARGE.--29 years, 26.7 ft³/s (0.756 m³/s), 19,340 acre-ft/yr (23.8 hm³/yr); median of yearly mean discharges, 22 ft³/s (0.62 m³/s), 15,900 acre-ft/yr (20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 13,000 ft³/s (368 m³/s) Apr. 24, 1950, gage height, 37.52 ft (11.436 m), from rating curve extended above 5,500 ft³/s (156 m³/s), result of failure of emergency embankment at site of Homme Dam; no flow Oct. 1 to Dec. 3, 1949, Oct. 1-4, 1969, Sept. 21, 1970, July 1, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,170 ft³/s (61.5 m³/s) Apr. 7, gage height, 28.56 ft (8.705 m); minimum daily, 0.15 ft³/s (0.004 m³/s) Nov. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	4.5	7.5	4.5	4.3	4.7	96	57	22	2.6	2.1	1.9
2	1.5	1.9	7.5	4.5	4.6	4.7	292	27	20	2.9	3.1	1.7
3	1.3	1.6	8.0	4.2	4.6	4.7	182	27	24	3.2	2.0	1.6
4	1.1	1.2	8.0	4.0	4.6	4.7	185	27	23	3.2	1.9	1.6
5	.94	1.0	7.5	4.0	4.6	4.7	316	30	21	5.9	2.1	1.7
6	1.0	.94	7.2	4.0	4.6	4.7	1470	30	15	2.6	2.0	1.7
7	1.6	.84	6.6	4.0	4.6	4.7	1580	31	15	2.9	2.0	1.8
8	1.9	.74	6.0	4.0	4.6	4.6	782	31	16	4.0	1.9	1.6
9	1.5	.25	6.0	4.0	4.6	4.5	996	34	11	1.3	3.6	1.1
10	1.2	.20	6.0	4.0	4.6	4.6	879	40	6.9	2.7	3.3	1.3
11	1.1	.20	6.0	4.0	4.6	4.8	556	41	7.1	2.6	3.0	1.4
12	.94	.15	5.6	4.0	4.6	5.0	357	36	7.1	5.1	2.9	2.0
13	.74	.15	5.5	4.0	4.6	5.0	252	33	5.9	3.1	3.0	1.1
14	.50	.20	5.5	4.0	4.6	5.0	153	32	4.0	2.3	3.0	.81
15	.38	.20	5.5	4.0	4.6	5.0	155	32	3.6	2.3	3.0	.58
16	.44	.20	5.5	4.0	4.6	5.0	178	32	3.6	2.4	3.0	.39
17	.37	.20	5.5	4.0	4.6	5.0	183	32	3.1	2.5	2.9	.43
18	.34	.50	5.5	4.0	4.6	5.0	187	18	3.1	3.0	2.8	.67
19	.44	3.6	5.2	4.0	4.6	5.0	170	5.7	4.5	3.0	2.9	1.1
20	.25	3.6	5.1	4.0	4.6	5.0	112	5.7	3.4	2.6	2.8	1.3
21	.16	3.6	5.0	4.0	4.6	5.2	91	5.5	3.2	2.5	2.2	1.4
22	.25	3.6	5.0	4.0	4.6	5.9	95	5.5	3.1	3.0	2.5	1.3
23	.34	3.6	5.0	4.0	4.6	6.3	113	10	2.6	3.0	2.5	1.5
24	.34	3.8	5.0	4.0	4.6	6.9	143	14	2.4	2.9	2.2	1.6
25	.25	4.5	5.0	4.0	4.7	6.8	118	15	2.6	2.8	2.4	.70
26	1.3	5.0	5.0	4.0	4.7	7.0	102	33	3.4	5.7	2.8	.66
27	6.5	5.5	4.7	4.1	4.7	7.4	92	67	2.6	3.0	1.8	.73
28	7.1	6.0	4.7	4.3	4.7	7.4	87	35	2.9	4.6	2.2	.75
29	6.8	6.5	4.7	4.3	---	7.4	87	22	2.3	2.9	2.2	.74
30	6.8	7.0	4.7	4.3	---	7.4	87	16	2.3	2.5	1.6	.67
31	6.8	---	4.6	4.3	---	7.4	---	14	---	2.4	1.3	---
TOTAL	55.88	71.27	178.6	126.5	128.9	171.5	10096	838.4	246.7	95.5	77.0	35.83
MEAN	1.80	2.38	5.76	4.08	4.60	5.53	337	27.0	8.22	3.08	2.48	1.19
MAX	7.1	7.0	8.0	4.5	4.7	7.4	1580	67	24	5.9	3.6	2.0
MIN	.16	.15	4.6	4.0	4.3	4.5	87	5.5	2.3	1.3	1.3	.39
AC-FT	111	141	354	251	256	340	20030	1660	489	189	153	71

CAL YR 1977 TOTAL 1083.53 MEAN 2.97 MAX 12 MIN .05 AC-FT 2150
WTR YR 1978 TOTAL 12122.08 MEAN 33.2 MAX 1580 MIN .15 AC-FT 24040

05089100 MIDDLE BRANCH PARK RIVER NEAR UNION, ND

LOCATION.--Lat 48°32'32", long 98°01'10", on north line of sec.5, T.158 N., R.57 W., Walsh County, Hydrologic Unit 09020310, on left bank 20 ft (6 m) downstream from bridge on county highway between Walsh and Cavalier Counties, and 3.5 mi (5.6 km) southwest of Union.

DRAINAGE AREA.--15.3 mi² (39.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,495 ft (456 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--13 years, 2.20 ft³/s (0.0623 m³/s), 1,590 acre-ft/yr (1.96 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 687 ft³/s (19.5 m³/s) May 6, 1967, gage height, 7.22 ft (2.201 m), from floodmark; maximum gage height, 7.51 ft (2.289 m) May 4, 1966, from floodmark, backwater from snowdrift; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 1	--	^{a}55	1.56	--	--
Apr. 6	0130	^{a}*300	8.50	*5.91	1.801
Apr. 9	0300	297	8.41	4.36	1.329

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.63	.17	.20	.12	.00	.00	14	3.5	1.1	.08	.09	.13
2	.63	.17	.20	.12	.00	.00	13	3.1	1.2	.08	.06	.15
3	.63	.23	.20	.12	.00	.00	10	2.5	1.2	.09	.03	.13
4	.63	.23	.20	.12	.00	.00	9.0	1.8	1.2	.26	.02	.12
5	.63	.23	.20	.12	.00	.00	25	1.7	.90	.37	.01	.10
6	.62	.23	.20	.12	.00	.00	140	1.4	.23	.23	.00	.09
7	.62	.23	.20	.12	.00	.00	60	1.2	.26	.17	.00	.13
8	.62	.23	.20	.10	.00	.00	49	2.3	.26	.52	.00	.15
9	.60	.23	.17	.10	.00	.00	152	4.1	.26	.37	.00	.13
10	.60	.23	.17	.10	.00	.00	51	3.1	.23	.20	.00	.09
11	.60	.23	.17	.10	.00	.00	26	2.4	.20	.15	.00	.15
12	.60	.20	.17	.10	.00	.00	18	2.1	.20	.20	.00	.30
13	.60	.23	.17	.10	.00	.00	8.6	1.8	.20	.15	.00	.29
14	.57	.23	.17	.08	.00	.00	7.9	1.6	.15	.12	.00	.20
15	.47	.23	.17	.08	.00	.00	11	1.4	.15	.13	.00	.15
16	.42	.23	.17	.04	.00	.00	11	1.2	.13	.13	.00	.13
17	.37	.23	.15	.04	.00	.00	12	.83	.09	.10	.00	.13
18	.29	.23	.15	.02	.00	.00	14	.57	.09	.08	.00	.13
19	.23	.23	.15	.02	.00	.00	8.3	.77	.08	.37	.00	.12
20	.23	.23	.15	.00	.00	.00	5.5	.77	.07	.37	.00	.12
21	.20	.20	.15	.00	.00	.00	5.1	1.0	.07	.29	.00	.12
22	.17	.20	.15	.00	.00	.00	5.6	1.0	.07	.26	.00	.10
23	.17	.20	.15	.00	.00	.00	10	1.0	.07	.26	.00	.09
24	.17	.20	.15	.00	.00	.00	10	.97	.08	.23	.02	.07
25	.17	.20	.13	.00	.00	.00	7.6	.90	.08	.20	.03	.07
26	.17	.20	.13	.00	.00	.01	6.4	1.8	.20	.15	.29	.07
27	.17	.20	.13	.00	.00	.20	6.3	1.5	.15	.13	.42	.07
28	.15	.20	.13	.00	.00	.50	6.0	1.2	.12	.13	.17	.07
29	.15	.20	.13	.00	---	1.0	5.4	.97	.09	.12	.15	.07
30	.17	.20	.13	.00	---	2.0	4.2	.77	.09	.13	.13	.07
31	.17	---	.13	.00	---	5.0	---	.77	---	.13	.13	---
TOTAL	12.45	6.45	5.07	1.72	.00	8.71	711.9	50.02	9.22	6.20	1.55	3.74
MEAN	.40	.22	.16	.055	.000	.28	23.7	1.61	.31	.20	.050	.12
MAX	.63	.23	.20	.12	.00	5.0	152	4.1	1.2	.52	.42	.30
MIN	.15	.17	.13	.00	.00	.00	4.2	.57	.07	.08	.00	.07
AC-FT	25	13	10	3.4	.00	17	1410	99	18	12	3.1	7.4

CAL YR 1977 TOTAL 160.18 MEAN .44 MAX 24 MIN .00 AC-FT 318
WTR YR 1978 TOTAL 817.03 MEAN 2.24 MAX 152 MIN .00 AC-FT 1620

05089100 MIDDLE BRANCH PARK RIVER NEAR UNION, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
13...	1250	--	.60	555	8.3	9.5	150	0	38
NOV									
02...	1345	--	.18	650	8.4	9.0	190	0	58
DEC									
07...	1650	--	.19	640	7.6	.0	220	0	70
JAN									
11...	1315	--	.11	630	7.8	.0	220	10	59
MAR									
27...	1110	.20	--	325	--	.5	--	--	--
30...	1600	--	2.5	230	--	1.0	--	--	--
APR									
08...	1100	--	36	187	7.7	.5	44	0	12
13...	1110	--	5.0	290	--	1.5	--	--	--
MAY									
02...	1445	--	2.9	390	8.4	17.0	110	0	29
JUN									
06...	1120	--	.24	595	7.9	16.0	190	0	52
JUL									
11...	1555	--	.17	590	7.7	21.5	220	0	59
SEP									
13...	1710	--	.29	580	7.9	12.5	200	13	52

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
13...	13	57	44	2.0	5.7	196	0	161	1.6
NOV									
02...	11	57	39	1.8	4.4	207	12	190	1.5
DEC									
07...	11	60	37	1.8	4.4	261	4	221	11
JAN									
11...	18	54	34	1.6	4.5	258	0	212	6.5
MAR									
27...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
APR									
08...	3.4	18	44	1.2	4.2	70	0	57	2.2
13...	--	--	--	--	--	--	--	--	--
MAY									
02...	9.1	33	39	1.4	3.8	171	0	140	1.1
JUN									
06...	15	53	37	1.7	4.9	273	0	224	5.5
JUL									
11...	18	47	31	1.4	4.5	284	0	233	9.1
SEP									
13...	17	40	30	1.2	4.3	206	11	187	4.6

05089100 MIDDLE BRANCH PARK RIVER NEAR UNION, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT								
13...	75	26	.1	11	325	323	.44	.53
NOV								
02...	89	20	.5	17	364	371	.50	.18
DEC								
07...	96	17	.4	27	431	419	.59	.22
JAN								
11...	98	15	.2	18	415	395	.56	.12
MAR								
27...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
APR								
08...	12	6.4	.1	14	144	105	.20	14.0
13...	--	--	--	--	--	--	--	--
MAY								
02...	29	11	.2	11	225	211	.31	1.76
JUN								
06...	65	13	.2	21	381	359	.52	.25
JUL								
11...	79	8.5	.2	27	407	383	.55	.19
SEP								
13...	86	8.1	.2	18	358	340	.49	.28

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT			
13...	100	140	80
NOV			
02...	0	240	80
DEC			
07...	240	340	360
JAN			
11...	290	100	340
APR			
08...	140	430	90
MAY			
02...	50	180	90
JUN			
06...	590	260	50
JUL			
11...	70	160	40
SEP			
13...	0	40	80

05089500 CART CREEK AT MOUNTAIN, ND

LOCATION.--Lat 48°40'37", long 97°51'41", in SW¼ sec.15, T.160 N., R.56 W., Pembina County, Hydrologic Unit 09020310, on right bank 50 ft (15 m) downstream from bridge on State Highway 32, and 0.7 mi (1.1 km) south of Mountain.

DRAINAGE AREA.--16.9 mi^2 (43.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1954 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 1,027.40 ft (313.152 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--24 years, 2.74 ft^3/s (0.0776 m^3/s), 1,990 acre-ft/yr (2.45 hm^3/yr); median of yearly mean discharges, 2.8 ft^3/s (0.079 m^3/s), 2,000 acre-ft/yr (2.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft^3/s (36.8 m^3/s) June 18, 1964, gage height, 9.18 ft (2.798 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft^3/s (0.85 m^3/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)	Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
Apr. 6	--	[a]*380	10.8	[b]*6.97	2.124	Apr. 18	0100	34	0.96	2.84	0.866
Apr. 9	0430	131	3.71	3.56	1.085	May 19	1400	40	1.13	2.91	.887

No flow for many days.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.71	.25	.45	.25	.20	.20	10	8.6	5.4	.28	.00	.00
2	.58	.22	.45	.25	.20	.20	15	7.8	4.4	.28	.00	.00
3	.47	.22	.45	.25	.20	.20	23	9.4	3.2	.19	.00	.00
4	.47	.22	.40	.25	.20	.20	14	8.6	2.0	1.8	.00	.00
5	.38	.22	.40	.25	.20	.20	16	7.2	1.2	1.8	.00	.00
6	.38	.25	.40	.25	.20	.20	240	6.3	1.4	3.0	.00	.00
7	.42	.28	.40	.25	.20	.20	61	6.0	1.2	1.0	.00	.00
8	5.4	.34	.40	.25	.20	.20	38	13	1.2	.78	.00	.00
9	5.7	.34	.40	.25	.20	.20	92	21	1.2	1.2	.00	.00
10	2.6	.22	.40	.25	.20	.20	48	13	1.2	.64	.00	.00
11	1.6	.20	.40	.25	.20	.20	28	10	1.0	.47	.00	.00
12	1.0	.20	.40	.25	.20	.22	26	7.8	.95	.38	.00	.00
13	.86	.20	.37	.25	.20	.24	15	6.9	.86	.25	.00	.67
14	.71	.20	.35	.25	.20	.24	16	6.3	.86	.19	.00	.12
15	.58	.20	.30	.25	.20	.22	21	5.7	.78	.22	.00	.01
16	.52	.20	.28	.25	.20	.22	20	5.1	.71	.25	.00	.00
17	.52	.20	.25	.25	.20	.22	27	4.4	.58	.14	.00	.00
18	.47	.20	.25	.25	.20	.20	25	3.8	.52	.10	.00	.00
19	.47	.20	.25	.25	.20	.20	21	15	.47	.38	.00	.02
20	.42	.20	.25	.25	.20	.20	13	11	.42	.34	.00	.04
21	.42	.20	.25	.25	.20	.20	14	7.8	.38	.19	.00	.04
22	.38	.20	.25	.25	.20	.33	16	6.9	.34	.14	.00	.02
23	.34	.20	.25	.25	.20	.20	20	5.7	.31	.22	.00	.00
24	.34	.20	.25	.25	.20	.20	20	4.8	.31	.19	.00	.00
25	.34	.30	.25	.25	.20	.20	20	5.1	.31	.25	.00	.00
26	.31	.40	.25	.25	.20	.20	19	12	.42	.04	.00	.00
27	.31	.50	.25	.22	.20	2.0	16	5.1	.47	.00	.00	.00
28	.25	.50	.25	.22	.20	10	16	3.6	.31	.00	.00	.00
29	.31	.50	.25	.22	---	13	13	3.2	.25	.00	.00	.01
30	.25	.45	.25	.21	---	10	11	2.4	.25	.00	.00	.01
31	.25	---	.25	.21	---	10	---	2.6	---	.00	.00	---
TOTAL	27.76	8.01	10.00	7.58	5.60	50.49	930	236.1	32.90	14.72	.00	.94
MEAN	.90	.27	.32	.24	.20	1.63	31.0	7.62	1.10	.47	.000	.031
MAX	5.7	.50	.45	.25	.20	13	240	21	5.4	3.0	.00	.67
MIN	.25	.20	.25	.21	.20	.20	10	2.4	.25	.00	.00	.00
AC-FT	55	16	20	15	11	100	1840	468	65	29	.00	1.9

CAL YR 1977 TOTAL 297.44 MEAN .81 MAX 36 MIN .00 AC-FT 590
WTR YR 1978 TOTAL 1324.10 MEAN 3.63 MAX 240 MIN .00 AC-FT 2630

05089500 CART CREEK AT MOUNTAIN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
13...	1010	.87	860	8.3	--	7.5	350	140	95
NOV									
02...	1145	.22	950	8.2	--	5.5	430	170	120
DEC									
13...	1625	.37	970	8.0	--	.0	440	180	120
JAN									
11...	1545	.25	970	8.6	--	.0	440	180	120
31...	1140	.21	1000	7.9	--	.5	440	170	120
MAR									
13...	1035	.24	980	7.6	--	.5	430	160	120
22...	1440	.33	850	--	--	1.0	--	--	--
27...	1225	2.0	655	--	--	.0	--	--	--
29...	1120	12	380	--	--	.0	--	--	--
APR									
04...	1120	13	399	--	4.0	1.0	--	--	--
05...	1310	46	280	7.8	--	.0	83	19	23
06...	0925	260	220	--	--	1.0	--	--	--
07...	0950	44	275	--	-3.0	.5	--	--	--
21...	1010	13	422	--	7.0	3.5	--	--	--
MAY									
02...	1635	7.1	520	8.5	--	17.0	180	47	52
JUN									
07...	1000	1.1	850	8.3	--	11.5	340	120	95
21...	1110	.38	980	8.2	--	15.0	410	--	110
JUL									
10...	1730	.50	850	8.0	--	20.5	370	120	100
SEP									
13...	1530	.23	730	8.2	--	12.0	300	110	82

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
13...	27	56	26	1.3	5.7	238	7	207	2.0
NOV									
02...	32	54	21	1.1	6.0	287	13	257	3.2
DEC									
13...	34	52	20	1.1	6.6	309	7	265	5.2
JAN									
11...	34	52	20	1.1	5.3	317	0	260	1.3
31...	34	51	20	1.1	5.1	326	0	267	6.6
MAR									
13...	32	50	20	1.0	4.8	329	0	270	13
22...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
05...	6.2	24	38	1.1	2.8	78	0	64	2.0
06...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
MAY									
02...	12	40	32	1.3	3.9	161	0	132	1.3
JUN									
07...	25	52	25	1.2	6.0	269	0	221	2.2
21...	33	54	22	1.2	6.1	--	--	250	--
JUL									
10...	29	50	22	1.1	6.7	303	0	249	4.8
SEP									
13...	23	37	21	.9	6.7	234	0	192	2.4

05089500 CART CREEK AT MOUNTAIN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT									
13...	220	21	.3	17	581	567	.79	1.36	--
NOV									
02...	240	23	.3	16	757	646	1.03	.45	--
DEC									
13...	240	21	.1	18	683	652	.93	.68	--
JAN									
11...	260	22	.4	15	708	665	.96	.48	--
31...	250	22	.4	21	697	664	.95	.40	--
MAR									
13...	250	23	.5	20	678	663	.92	.44	--
APR									
04...	--	--	--	--	--	--	--	--	--
05...	51	8.3	.2	11	205	165	.28	25.5	--
MAY									
02...	120	10	.3	20	334	338	.45	6.40	--
JUN									
07...	210	18	.4	25	589	565	.80	1.75	--
21...	230	20	.5	24	--	629	.86	.65	.14
JUL									
10...	200	19	.5	29	614	584	.84	.83	--
SEP									
13...	170	16	.3	16	488	466	.66	.30	--

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
OCT					
13...	--	--	520	80	80
NOV					
02...	--	--	140	20	100
DEC					
13...	--	--	330	120	140
JAN					
11...	--	--	290	0	160
31...	--	--	190	60	140
MAR					
13...	--	--	0	100	100
APR					
05...	--	--	0	100	50
MAY					
02...	--	--	0	40	60
JUN					
07...	--	--	780	490	60
21...	.13	.40	160	10	40
JUL					
10...	--	--	230	60	40
SEP					
13...	--	--	30	0	40

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
APR									
04...	358	13	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
06...	2920	2050	60	84	89	91	93	95	97
07...	1040	124	--	--	--	--	--	--	--
21...	297	10	--	--	--	--	--	--	--

05090000 PARK RIVER AT GRAFTON, ND

LOCATION.--Lat 48°25'24", long 97°24'30", in NE¼ sec.13, T.157 N., R.53 W., Walsh County, Hydrologic Unit 09020310, on right bank 30 ft (9 m) upstream from Wakeman Avenue bridge in Grafton, and 3.5 mi (5.6 km) downstream from South Branch.

DRAINAGE AREA.--695 mi² (1,800 km²), approximately.

PERIOD OF RECORD.--April 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 955: 1941. WSP 1438: 1932, 1933(M), 1936-37(M), 1939(M), 1944. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 807.39 ft (246.092 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1940, nonrecording gage at site 30 ft (9 m) downstream at same datum. Oct. 1, 1940, to Sept. 17, 1946, nonrecording gage at site 2 mi (3 km) downstream above masonry dam at same datum. Sept. 18, 1946, to July 25, 1952, nonrecording gage at site 30 ft (9 m) downstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Homme Lake (station 05088500) and several small reservoirs. Diversion by city of Grafton started in 1955. Figures of daily discharge do not include diversion by city of Grafton.

AVERAGE DISCHARGE (UNADJUSTED).--47 years (water years 1932-78), 56.7 ft³/s (1.606 m³/s), 41,080 acre-ft/yr (50.7 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s), 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) Apr. 19, 1950, gage height, 20.13 ft (6.136 m) from rating curve extended above 9,000 ft³/s (255 m³/s); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,700 ft³/s (105 m³/s) Apr. 8, gage height, 17.10 ft (5.212 m), backwater from ice; minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Oct. 1-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.50	2.5	2.5	1.6	1.5	234	247	52	4.2	.95	.30
2	.10	7.6	2.5	2.5	1.6	1.5	530	214	49	3.9	1.0	.30
3	.10	3.6	2.5	2.5	1.6	1.5	497	199	43	3.7	.56	.30
4	.10	2.9	2.5	2.5	1.6	1.5	531	179	43	6.3	.40	.30
5	.10	2.3	2.5	2.5	1.6	1.5	606	139	47	6.9	.36	.30
6	.10	2.0	2.5	2.5	1.6	1.5	986	114	53	4.7	.32	.30
7	.10	2.0	2.5	2.5	1.6	1.5	1700	101	48	4.7	.32	.30
8	.15	3.0	2.5	2.5	1.5	1.5	3170	111	39	17	.30	.25
9	.15	2.5	2.5	2.5	1.5	1.5	2740	114	34	13	.20	.20
10	.20	1.5	2.5	2.5	1.5	1.5	2380	125	30	15	.20	.20
11	.25	1.0	2.5	2.5	1.0	1.5	2290	139	23	7.6	.20	.20
12	.25	2.0	2.5	2.5	1.0	2.0	1820	132	20	4.7	.30	19
13	.30	2.0	2.5	2.5	1.0	2.0	1400	144	18	3.4	.30	8.0
14	.30	2.0	2.5	2.5	1.0	2.0	883	124	18	2.3	.30	8.4
15	.32	2.0	2.5	2.5	1.5	2.0	623	104	18	3.0	.30	7.1
16	.34	2.0	2.5	2.5	1.5	2.0	498	85	17	2.6	.30	4.8
17	.48	2.0	2.5	2.5	1.5	2.0	468	67	14	2.5	.30	2.7
18	.46	2.0	2.5	2.5	1.5	5.0	468	58	13	1.7	.30	1.7
19	.30	2.0	2.5	2.5	1.5	5.0	462	45	12	6.4	.30	1.6
20	.20	2.5	2.5	2.5	1.5	7.5	439	24	11	3.2	.30	1.2
21	.20	2.5	2.5	2.5	1.5	20	377	17	11	4.4	.30	.86
22	.20	2.5	2.5	2.5	1.5	20	340	17	9.5	2.9	.30	.43
23	.20	2.5	2.5	2.5	1.5	20	329	15	4.8	3.8	.30	.26
24	.20	2.5	2.5	2.5	1.5	20	360	23	4.9	2.7	.30	.26
25	.20	2.5	2.5	2.5	1.5	25	408	43	9.4	3.9	.30	.20
26	.20	2.5	2.5	2.4	1.5	30	349	52	8.4	2.1	.30	.20
27	.20	2.5	2.5	2.2	1.5	50	293	94	6.9	.95	.30	.20
28	.20	2.5	2.5	2.0	1.5	86	258	142	6.6	.35	.30	.20
29	.15	2.5	2.5	1.9	---	111	245	85	5.5	1.3	.30	.20
30	.15	2.5	2.5	1.8	---	72	253	63	4.1	2.3	.30	.20
31	.20	---	2.5	1.7	---	114	---	51	---	1.4	.30	---
TOTAL	6.50	72.40	77.5	74.5	40.7	614.0	25937	3067	673.1	142.90	10.81	60.46
MEAN	.21	2.41	2.50	2.40	1.45	19.8	865	98.9	22.4	4.61	.35	2.02
MAX	.48	7.6	2.5	2.5	1.6	114	3170	247	53	17	1.0	19
MIN	.10	.50	2.5	1.7	1.0	1.5	234	15	4.1	.35	.20	.20
AC-FT	13	144	154	148	81	1220	51450	6080	1340	283	21	120
(+)	50	53	50	51	54	46	58	57	60	55	61	56
MEAN*	1.02	3.30	3.31	3.23	2.42	20.6	866	99.8	23.4	5.50	1.34	2.96
AC-FT*	63	197	204	199	135	1270	51500	6140	1400	338	82	176

			OBSERVED								ADJUSTED		
CAL YR 1977	TOTAL	938.61	MEAN 2.57	MAX	17	MIN	.05	AC-FT	1860	MEAN	3.42	AC-FT	2480
WTR YR 1978	TOTAL	30776.87	MEAN 84.3	MAX	3170	MIN	.10	AC-FT	61050	MEAN	86.1	AC-FT	61710

+ Diversion in acre-feet by city of Grafton.
* Adjusted for diversion by city of Grafton.

05092000 RED RIVER OF THE NORTH AT DRAYTON, ND

LOCATION.--Lat 48°34'20", long 97°08'50", in SE¼SE¼SE¼ sec.24, T.159 N., R.51 W., Pembina County, Hydrologic Unit 09020311, on downstream end of east pier of interstate highway bridge, 1.5 mi (2.4 km) northeast of Drayton, and at mile 206.7 (332.6 km).

DRAINAGE AREA.--34,800 mi^2 (90,130 km^2), approximately, includes 3,800 mi^2 (9,840 km^2) in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937, April 1941 to current year (fragmentary prior to April 1949).

REVISED RECORDS.--WSP 1388: 1949-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 755.00 ft (230.124 m) National Geodetic Vertical Datum of 1929 (Minnesota highway benchmark). Prior to Nov. 30, 1954, nonrecording gage at site 1.5 mi (2.4 km) upstream at datum 1.59 ft (0.485 m) higher.

REMARKS.--Records good. Some regulation by reservoirs on tributaries.

AVERAGE DISCHARGE.--29 years (1949-78), 3,792 ft^3/s (107.4 m^3/s), 2,747,000 acre-ft/yr (3.39 km^3/yr); median of yearly mean discharges, 2,650 ft^3/s (75.0 m^3/s), 1,920,000 acre-ft/yr (2.4 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,500 ft^3/s (2,450 m^3/s) May 12, 1950, gage height, 41.58 ft (12.674 m), former site and datum; minimum observed, 7.7 ft^3/s (0.22 m^3/s) Oct. 16, 1936, gage height, 1.75 ft (0.533 m), former site and datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known since 1860, that of May 12, 1950. Flood of April 1897 reached a stage of about 41 ft (12.5 m), at site and datum in use prior to Nov. 30, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 56,200 ft^3/s (1,590 m^3/s) Apr. 16; gage height, 41.19 ft (12.555 m); minimum, 656 ft^3/s (18.6 m^3/s) Sept. 11, gage height, 9.77 ft (2.978 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1300	1030	1500	1450	1140	1090	11800	19100	4700	3500	2420	1440
2	1400	1010	1540	1440	1100	1090	14000	17500	4630	3360	2210	1500
3	1420	980	1620	1440	1100	1140	16600	15700	4390	3140	2120	1390
4	1360	1000	1640	1440	1100	1140	18000	13900	4290	2980	2100	1220
5	1300	1000	1620	1440	1100	1170	19900	12300	4350	2850	2080	1110
6	1270	1010	1560	1440	1100	1170	22600	10700	4290	2730	2030	1010
7	1230	1000	1580	1430	1120	1170	28000	9250	4090	2750	1980	950
8	1220	1010	1550	1430	1140	1170	38000	8200	3830	3090	1940	830
9	1200	1020	1540	1420	1160	1170	43900	7550	3810	3550	1880	707
10	1170	1100	1490	1400	1170	1180	47500	6900	3750	3770	1810	680
11	1130	1150	1430	1360	1160	1180	50200	6400	3670	3750	1730	664
12	1190	1180	1380	1360	1160	1180	52600	6100	3590	3690	1660	780
13	1390	1160	1360	1360	1150	1190	54600	5950	3460	3730	1600	870
14	1600	1070	1320	1350	1180	1200	55700	5750	3340	4070	1540	920
15	1640	900	1310	1340	1140	1250	56000	5500	3340	4590	1550	960
16	1560	860	1290	1340	1130	1250	56200	5250	3360	4750	1540	1040
17	1440	1000	1290	1340	1130	1260	56100	5050	3570	4800	1540	990
18	1420	1180	1290	1340	1130	1280	53500	4850	3810	4800	1490	990
19	1350	1260	1290	1340	1130	1310	50000	4800	4090	4750	1370	1070
20	1280	1200	1310	1330	1120	1330	47800	4750	4570	4710	1240	1130
21	1240	1180	1400	1320	1120	1420	45200	4600	4650	4430	1130	1230
22	1240	1160	1460	1300	1120	1540	41000	4450	4230	4330	1050	1360
23	1250	1110	1480	1290	1110	1770	36600	4950	3810	4290	1010	1380
24	1250	1100	1480	1280	1110	2000	33200	5050	3530	4150	990	1290
25	1230	1200	1470	1270	1110	2300	30600	5350	3190	3890	970	1220
26	1200	1280	1470	1260	1100	2700	28500	5200	3000	3550	990	1110
27	1180	1300	1460	1250	1100	3500	26500	5150	2980	3310	1030	1090
28	1160	1370	1450	1240	1090	4850	24500	5150	3030	3160	1090	1090
29	1130	1400	1450	1230	---	6200	22500	5100	3180	3030	1140	1090
30	1100	1430	1450	1210	---	7800	20700	4950	3400	2850	1180	1100
31	1050	---	1450	1180	---	9300	---	4800	---	2670	1240	---
TOTAL	39900	33630	44930	41620	31480	67300	1102300	230250	113930	115020	47650	32211
MEAN	1287	1121	1449	1343	1124	2171	36740	7427	3798	3710	1537	1074
MAX	1640	1430	1640	1450	1170	9300	56200	19100	4700	4800	2420	1500
MIN	1050	860	1290	1180	1090	1090	11800	4450	2980	2670	970	664
AC-FT	79140	66710	89120	82550	62440	133500	2186000	456700	226000	228100	94510	63890

CAL YR 1977 TOTAL 289652 MEAN 794 MAX 3250 MIN 129 AC-FT 574500
WTR YR 1978 TOTAL 1900221 MEAN 5206 MAX 56200 MIN 664 AC-FT 3769000

05092200 PEMBINA COUNTY DRAIN 20 NEAR GLASSTON, ND

LOCATION.--Lat 48°41'49", long 97°23'03", in NW¼ sec.8, T.160 N., R.52 W., Pembina County, Hydrologic Unit 09020311, on left bank 50 ft (15 m) downstream from bridge on county highway, and 3 mi (5 km) southeast of Glasston.

DRAINAGE AREA.--80 mi² (207 km²), revised.

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 808 ft (246 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--7 years, 1.70 ft³/s (0.0481 m³/s), 1,230 acre-ft/yr (1.52 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 268 ft³/s (7.59 m³/s) Apr. 3, 1976, gage height, 7.10 ft (2.164 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 73 ft³/s (2.07 m³/s) Mar. 27, gage height, 11.60 ft (3.536 m), backwater from snow; only peak above base of 25 ft³/s (0.71 m³/s); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.00	.00	.00	.00	.00	17	.25	.00	.00	.00	.00
2	.17	.00	.00	.00	.00	.00	15	.15	.00	.00	.00	.00
3	.15	.00	.00	.00	.00	.00	15	.05	.00	.00	.00	.00
4	.12	.00	.00	.00	.00	.00	16	.01	.00	.00	.00	.00
5	.10	.00	.00	.00	.00	.00	15	.01	.00	.00	.00	.00
6	.08	.00	.00	.00	.00	.00	17	.00	.00	.00	.00	.00
7	.07	.00	.00	.00	.00	.00	15	.00	.00	.00	.00	.00
8	.40	.00	.00	.00	.00	.00	14	.02	.00	.00	.00	.00
9	.15	.00	.00	.00	.00	.00	15	.07	.00	.00	.00	.00
10	.08	.00	.00	.00	.00	.00	13	.04	.00	.00	.00	.00
11	.01	.00	.00	.00	.00	.00	11	.02	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	10	.00	.00	.00	.00	.09
13	.00	.00	.00	.00	.00	.00	8.0	.00	.00	.00	.00	1.2
14	.00	.00	.00	.00	.00	.00	7.0	.00	.00	.00	.00	.25
15	.00	.00	.00	.00	.00	.00	6.0	.00	.00	.00	.00	.06
16	.00	.00	.00	.00	.00	.00	5.0	.00	.00	.00	.00	.02
17	.00	.00	.00	.00	.00	.00	4.0	.00	.00	.00	.00	.02
18	.00	.00	.00	.00	.00	.00	3.0	.00	.00	.00	.00	.02
19	.00	.00	.00	.00	.00	.00	2.8	.00	.00	.00	.00	.02
20	.00	.00	.00	.00	.00	.00	2.7	.00	.00	.00	.00	.02
21	.00	.00	.00	.00	.00	.00	2.1	.00	.00	.00	.00	.01
22	.00	.00	.00	.00	.00	.00	1.7	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	2.0	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	2.1	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	1.1	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	20	1.0	.28	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	60	.85	.05	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	24	.62	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	20	.47	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	22	.30	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	20	---	.00	---	.00	.00	---
TOTAL	1.53	.00	.00	.00	.00	166.00	223.74	.95	.00	.00	.00	1.71
MEAN	.049	.000	.000	.000	.000	5.35	7.46	.031	.000	.000	.000	.057
MAX	.40	.00	.00	.00	.00	60	17	.28	.00	.00	.00	1.2
MIN	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
AC-FT	3.0	.00	.00	.00	.00	329	444	1.9	.00	.00	.00	3.4

CAL YR 1977 TOTAL 3.45 MEAN .009 MAX .46 MIN .00 AC-FT 6.8
WTR YR 1978 TOTAL 393.93 MEAN 1.08 MAX 60 MIN .00 AC-FT 781

05098700 HIDDEN ISLAND COULEE NEAR HANSBORO, ND
(International gaging station)

LOCATION.--Lat 48°57'10", long 99°25'35", in SE¼SW¼ sec.11, T.163 N., R.68 W., Towner County, Hydrologic Unit 09020313, on right bank 400 ft (122 m) downstream from bridge on county highway, and 2.5 mi (4.0 km) west of Hansboro.

DRAINAGE AREA.--38 mi^2 (98 km^2), approximately.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,615 ft (492 m), from topographic map. Prior to May 20, 1962, nonrecording gage 400 ft (122 m) upstream at same datum.

REMARKS.--Records fair.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--17 years, 3.76 ft^3/s (0.106 m^3/s), 2,720 acre-ft/yr (3.35 hm^3/yr); median of yearly mean discharges, 2.8 ft^3/s (0.079 m^3/s), 2,000 acre-ft/yr (2.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft^3/s (30.0 m^3/s) Apr. 21, 1974, gage height, 8.61 ft (2.624 m); maximum gage height observed, 8.90 ft (2.713 m) Apr. 14, 1975; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 200 ft^3/s (5.66 m^3/s) Apr. 6, gage height, 7.73 ft (2.356 m), backwater from ice, only peak above base of 25 ft^3/s (0.71 m^3/s); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.50	1.4	.05	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	3.0	1.1	.04	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	40	.72	.04	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	45	.50	.03	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	110	.41	.03	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	150	.35	.02	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	90	.28	.02	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	48	.47	.01	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	53	.86	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	43	.92	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	34	.82	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	23	.64	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	19	.50	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	18	.47	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	16	.38	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	9.1	.28	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	8.1	.22	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	7.5	.16	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	5.1	.22	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	3.2	.28	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	3.4	.22	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	3.4	.22	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	3.2	.16	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	3.0	.10	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	2.6	.22	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	2.6	.56	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	2.3	.35	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	2.1	.24	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	1.9	.14	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	1.6	.07	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.05	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	751.60	13.31	.24	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	25.1	.43	.008	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	150	1.4	.05	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.50	.05	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	1490	26	.5	.00	.00	.00

CAL YR 1977 TOTAL 0.92 MEAN .003 MAX .10 MIN .00 AC-FT 1.8
WTR YR 1978 TOTAL 765.15 MEAN 2.10 MAX 150 MIN .00 AC-FT 1520

05098800 CYPRESS CREEK NEAR SARLES, ND
(International gaging station)

LOCATION.--Lat 48°56'35", long 98°57'05", in SW¼SE¼ sec.9, T.163 N., R.64 W., Cavalier County, Hydrologic Unit 09020313, on right bank 150 ft (46 m) downstream from twin multiplate culverts on county highway, and 2.5 mi (4.0 km) east of Sarles.

DRAINAGE AREA.--71 mi^2 (184 km^2), approximately.

PERIOD OF RECORD.--May 1961 to current year. Prior to October 1973, published as Long River near Sarles.

GAGE.--Water-stage recorder. Altitude of gage is 1,545 ft (471 m), from topographic map.

REMARKS.--Records good.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--17 years, 6.53 ft^3/s (0.185 m^3/s), 4,730 acre-ft/yr (5.83 hm^3/yr); median of yearly mean discharges, 4.9 ft^3/s (0.14 m^3/s), 3,600 acre-ft/yr (4.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,920 ft^3/s (54.4 m^3/s) Apr. 10, 1971, gage height, 8.56 ft (2.609 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 7	0800	*392	11.1	*5.84	1.780	May 26	0815	97	2.75	3.91	1.192

No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	1.0	2.5	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.70	2.4	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.40	1.9	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	35	.31	1.8	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	40	.16	.99	2.0	.00	.00
6	.00	.00	.00	.00	.00	.00	227	.11	.41	1.1	.00	.00
7	.00	.00	.00	.00	.00	.00	308	.08	.15	.94	.00	.00
8	.00	.00	.00	.00	.00	.00	184	.12	.05	1.4	.00	.00
9	.00	.00	.00	.00	.00	.00	120	.18	.00	2.2	.00	.00
10	.00	.00	.00	.00	.00	.00	81	.27	.00	1.6	.00	.00
11	.00	.00	.00	.00	.00	.00	66	.27	.00	.81	.00	.00
12	.00	.00	.00	.00	.00	.00	51	.20	.00	.45	.00	.00
13	.00	.00	.00	.00	.00	.00	32	.10	.00	.16	.00	.00
14	.00	.00	.00	.00	.00	.00	35	.06	.00	.06	.00	.00
15	.00	.00	.00	.00	.00	.00	32	.03	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	27	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	25	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	23	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	14	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	6.8	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	8.8	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	12	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	13	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	9.3	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	7.0	1.8	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	5.9	73	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	4.9	34	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	3.5	17	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	2.5	9.0	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	1.5	5.2	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	2.8	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	1375.20	146.79	10.20	10.72	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	45.8	4.74	.34	.35	.000	.000
MAX	.00	.00	.00	.00	.00	.00	308	73	2.5	2.2	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	2730	291	20	21	.00	.00

CAL YR 1977 TOTAL 268.64 MEAN .74 MAX 45 MIN .00 AC-FT 533
WTR YR 1978 TOTAL 1542.91 MEAN 4.23 MAX 308 MIN .00 AC-FT 3060

05099100 SNOWFLAKE CREEK NEAR SNOWFLAKE, MAN
(International gaging station)

LOCATION.--Lat 49°01'17", long 98°36'13", in SW¼ sec.10, T.1, R.9 W., 1st meridian, at traffic bridge, 2.5 mi (4.0 km) east, and 1.5 mi (2.4 km) south of Snowflake.

DRAINAGE AREA.--348 mi² (901 km²).

PERIOD OF RECORD.--March 1961 to current year.

GAGE.--Water-stage recorder since March 1968 and nonrecording gage prior thereto. Datum of gage is 1,222.63 ft (372.658 m), Geodetic Survey of Canada datum. Prior to Apr. 2, 1964, nonrecording gage at present site and datum. Apr. 2, 1964, to May 10, 1965, nonrecording gage at site 0.5 mi (0.8 km) downstream at present datum.

REMARKS.--Records good.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--17 years, 16.3 ft³/s (0.462 m³/s), 11,810 acre-ft/yr (14.6 hm³/yr); median of yearly mean discharges, 12 ft³/s (0.34 m³/s), 8,700 acre-ft/yr (11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 823 ft³/s (23.3 m³/s) May 21, 1974, gage height 5.98 ft (1.823 m); maximum gage height, 7.39 ft (2.252 m) Apr. 11, 1969; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 247 ft³/s (7.00 m³/s) Apr. 27, gage height, 4.65 ft (1.417 m); maximum gage height, 4.91 ft (1.497 m) Apr. 6, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.00	.00	.00	.00	.00	7.6	145	9.1	1.4	.00	.15
2	.03	.00	.00	.00	.00	.00	5.0	121	7.7	1.1	.00	.06
3	.02	.00	.00	.00	.00	.00	6.8	103	7.1	.75	.00	.01
4	.01	.00	.00	.00	.00	.00	8.1	91	5.9	.93	.00	.00
5	.00	.00	.00	.00	.00	.00	68	79	4.5	2.2	.00	.00
6	.00	.00	.00	.00	.00	.00	206	68	3.5	1.9	.00	.00
7	.00	.00	.00	.00	.00	.00	107	61	2.6	1.1	.00	.00
8	.03	.00	.00	.00	.00	.00	66	61	2.1	1.1	.00	.00
9	.02	.00	.00	.00	.00	.00	45	56	1.8	1.1	.00	.00
10	.03	.00	.00	.00	.00	.00	77	54	1.6	.91	.00	.00
11	.03	.00	.00	.00	.00	.00	28	50	2.0	.81	.00	.00
12	.02	.00	.00	.00	.00	.00	29	46	1.7	.80	.00	.00
13	.01	.00	.00	.00	.00	.00	20	43	1.7	.75	1.2	.00
14	.00	.00	.00	.00	.00	.00	23	40	1.6	.69	.25	.00
15	.00	.00	.00	.00	.00	.00	25	37	1.3	.69	.10	.00
16	.00	.00	.00	.00	.00	.00	23	35	1.2	.61	.02	.00
17	.00	.00	.00	.00	.00	.00	32	32	1.1	.56	.00	.00
18	.00	.00	.00	.00	.00	.00	33	27	1.1	.57	.00	.00
19	.00	.00	.00	.00	.00	.00	140	25	1.1	.53	.00	.00
20	.00	.00	.00	.00	.00	.00	191	22	1.1	.48	.00	.00
21	.00	.00	.00	.00	.00	.00	185	20	1.1	.45	.00	.00
22	.00	.00	.00	.00	.00	.05	190	19	.87	.41	.00	.00
23	.00	.00	.00	.00	.00	.10	189	17	.74	.38	.00	.00
24	.00	.00	.00	.00	.00	.30	177	16	.69	.37	.00	.00
25	.00	.00	.00	.00	.00	.50	171	15	.65	.28	.00	.00
26	.00	.00	.00	.00	.00	.75	167	15	.73	.20	.00	.00
27	.00	.00	.00	.00	.00	1.6	185	13	.74	.14	2.8	.00
28	.00	.00	.00	.00	.00	1.3	225	11	.65	.07	6.3	.00
29	.00	.00	.00	.00	---	3.5	197	10	.55	.05	.85	.00
30	.00	.00	.00	.00	---	2.9	169	8.8	.93	.01	.43	.00
31	.00	---	.00	.00	---	3.7	---	8.1	---	.00	.26	---
TOTAL	.25	.00	.00	.00	.00	14.70	2995.5	1348.9	67.45	21.34	12.21	.22
MEAN	.008	.000	.000	.000	.000	.47	99.9	43.5	2.25	.69	.39	.007
MAX	.05	.00	.00	.00	.00	3.7	225	145	9.1	2.2	6.3	.15
MIN	.00	.00	.00	.00	.00	.00	5.0	8.1	.55	.00	.00	.00
AC-FT	.5	.00	.00	.00	.00	29	5940	2680	134	42	24	.4

WTR YR 1978 TOTAL 4460.57 MEAN 12.2 MAX 225 MIN .00 AC-FT 8850

05099150 MOWBRAY CREEK NEAR MOWBRAY, MAN

LOCATION.--Lat 49°00'00", long 98°27'15", in SE¼ sec.3, T.1, R.8 W., 1st meridian, on downstream side of bridge on Municipal Road on international boundary, and 1.5 mi (2.4 km) east of Mowbray.

DRAINAGE AREA.--93.9 mi² (243.2 km²).

PERIOD OF RECORD.--March to October, 1962 to current year.

GAGE.--Water-stage recorder operated March 1 to October 31 each year. Nonrecording gage prior to 1971.

COOPERATION.--Records furnished by Water Survey of Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 670 ft³/s (19.0 m³/s) Apr. 21, 1974, gage height, 7.02 ft (2.140 m); maximum gage height, 7.88 ft (2.402 m) Mar. 29, 1966, backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 378 ft³/s (10.7 m³/s) Apr. 11, gage height, 6.46 ft (1.969 m); maximum gage height, 6.53 ft (1.990 m) Apr. 9, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17					.00	2.5	22	2.4	.48	.00	.00
2	.13					.00	3.0	20	2.5	.00	.00	.00
3	.11					.00	3.9	19	2.6	.00	.00	.00
4	.04					.00	15	16	2.4	4.8	.00	.00
5	.00					.00	19	13	2.3	16	.00	.00
6	.00					.00	45	11	2.3	6.6	.00	.00
7	.00					.00	147	9.5	2.6	2.0	.00	.00
8	.00					.00	313	9.6	2.5	.75	.00	.00
9	.00					.00	376	10	2.2	.39	.00	.00
10	.00					.00	351	10	1.9	.12	.00	.00
11	.00					.00	378	9.1	1.6	.00	.00	.00
12	.00					.00	317	8.6	1.5	.00	.00	.00
13	.00					.00	225	8.5	1.1	.00	.00	.00
14	.00					.00	196	8.0	.91	.00	.00	.00
15	.00					.00	163	6.8	.76	.00	.00	.00
16	.00					.00	125	5.9	.58	.00	.00	.00
17	.00					.00	88	4.7	.34	.00	.00	.00
18	.00					.00	62	3.6	.17	.00	.00	.00
19	.00					.00	38	3.6	.56	.00	.00	.00
20	.00					.00	40	3.1	.71	.00	.00	.00
21	.00					.00	31	2.6	.23	.00	.00	.00
22	.00					.00	47	2.3	.18	.00	.00	.00
23	.00					.00	36	2.1	.16	.00	.00	.00
24	.00					.00	28	1.9	.11	.00	.00	.00
25	.00					.00	25	1.9	.02	.00	.00	.00
26	.00					.00	28	2.2	.00	.00	.00	.00
27	.00					.00	30	1.6	.00	.00	.00	.00
28	.00					.49	29	1.5	.00	.00	.98	.00
29	.00					1.0	26	1.4	.00	.00	.96	.00
30	.00					1.5	24	1.4	.49	.00	.09	.00
31	.00					2.0	---	1.6	---	.00	.00	---
TOTAL	.45					4.99	3211.4	222.5	33.12	31.14	2.03	.00
MEAN	.015					.16	107	7.18	1.10	1.00	.065	.000
MAX	.17					2.0	378	22	2.6	16	.98	.00
MIN	.00					.00	2.5	1.4	.00	.00	.00	.00
AC-FT	.9					9.9	6370	441	66	62	4.0	.00

05099300 PEMBINA RIVER NEAR WINDYGATES, MAN
(International gaging station)

LOCATION.--Lat 49°01'53", long 98°16'40", in SE¼ sec.13, T.1, R.7 W., 1st meridian, on left bank 0.2 mi (0.3 km) downstream from bridge, and 3 mi (5 km) northeast of Windygates.

DRAINAGE AREA.--3,020 mi² (7,820 km²).

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder and nonrecording gage. Datum of recording gage is 1,102.02 ft (335.896 m). Datum of nonrecording gage is 1,105.00 ft (336.804 m), both gages referred to Geodetic Survey of Canada datum.

REMARKS.--Records fair.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--16 years, 241 ft³/s (6.825 m³/s) 174,600 acre-ft/yr (215 hm³/yr); median of yearly mean discharges, 170 ft³/s (4.81 m³/s), 123,000 acre-ft/yr (150 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s (326 m³/s) Apr. 26, 1974, gage height, 19.50 ft (5.944 m); no flow in some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,090 ft³/s (30.9 m³/s) Apr. 9; gage height, 8.86 ft (2.701 m); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	4.2	.90	.71	.00	.00	50	598	200	77	34	30
2	30	4.0	.90	.71	.00	.00	70	570	195	74	30	29
3	25	3.9	.90	.67	.00	.00	80	539	185	71	30	28
4	21	3.3	.90	.67	.00	.00	93	523	178	69	30	27
5	18	3.1	.80	.67	.00	.00	300	502	158	64	29	27
6	14	3.1	.80	.60	.00	.00	800	481	163	66	29	26
7	12	3.6	.80	.57	.00	.00	700	467	156	53	28	24
8	11	3.2	.80	.49	.00	.00	908	463	148	52	29	24
9	8.5	3.1	.80	.46	.00	.00	1090	470	141	58	29	24
10	7.2	3.0	.80	.42	.00	.00	943	453	133	61	28	23
11	6.5	2.9	.80	.35	.00	.00	873	445	126	58	28	22
12	5.8	2.8	.80	.32	.00	.00	916	431	119	55	27	26
13	5.5	2.7	.80	.25	.00	.00	726	420	111	52	34	34
14	5.4	2.6	.80	.21	.00	.00	615	404	107	50	34	29
15	4.5	2.5	.80	.18	.00	.00	614	375	103	46	33	28
16	4.2	2.4	.80	.11	.00	.00	644	357	99	42	31	26
17	4.2	2.3	.80	.07	.00	.00	651	346	92	39	30	25
18	4.2	2.2	.80	.04	.00	.00	650	320	88	41	29	23
19	4.1	2.1	.80	.00	.00	.00	634	306	83	39	28	22
20	4.1	2.0	.80	.00	.00	.00	663	296	85	39	27	21
21	4.0	1.8	.80	.00	.00	.00	663	281	80	39	26	20
22	3.9	1.6	.80	.00	.00	.00	663	268	79	39	26	21
23	3.8	1.4	.79	.00	.00	.00	676	252	77	39	26	20
24	3.7	1.2	.78	.00	.00	.00	654	240	78	39	26	19
25	3.6	1.0	.77	.00	.00	.00	638	240	76	39	26	18
26	3.5	1.0	.76	.00	.00	.00	626	238	66	36	28	18
27	2.8	1.0	.75	.00	.00	.00	628	227	65	34	60	17
28	2.9	1.0	.74	.00	.00	.00	640	234	66	33	42	15
29	2.8	1.0	.73	.00	---	10	649	236	63	32	33	15
30	2.8	.90	.72	.00	---	25	625	224	61	31	30	14
31	3.1	---	.71	.00	---	40	---	209	---	30	30	---
TOTAL	265.1	70.90	24.75	7.50	.00	75.00	18482	11415	3381	1497	950	695
MEAN	8.55	2.36	.80	.24	.000	2.42	616	368	113	48.3	30.6	23.2
MAX	33	4.2	.90	.71	.00	40	1090	598	200	77	60	34
MIN	2.8	.90	.71	.00	.00	.00	50	209	61	30	26	14
AC-FT	526	141	49	15	.00	149	36660	22640	6710	2970	1880	1380

WTR YR 1978 TOTAL 36863.25 MEAN 101 MAX 1090 MIN .00 AC-FT 73120

05099380 PEMBINA RIVER NEAR VANG, ND

LOCATION.--Lat 48°54'10", long 98°13'40", in SW¼NW¼ sec.29, T.163 N., R.57 W., Cavalier County, Hydrologic Unit 09020313, at bridge on county highway, and 3 mi (4.8 km) east of Vang.

DRAINAGE AREA.--3,100 mi² (8,000 km²), approximately.

PERIOD OF RECORD.--Water years 1962, 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
25...	1640	6.6	1000	--	9.5	--	--	--	--	--	--
26...	1500	6.4	960	8.2	9.0	9	10.4	122	1.8	K12	410
27...	1630	6.0	950	7.8	9.5	--	--	--	--	--	--
DEC											
07...	0900	2.0	1260	7.2	.0	--	9.5	72	.6	K10	--
JAN											
03...	1200	.50	1210	7.6	.0	--	9.9	77	.4	K9	--
FEB											
01...	1515	.08	1400	7.6	.0	4	3.4	24	--	11	640
22...	1230	.01	1250	7.4	.5	--	.5	0	2.8	K14	--
MAR											
21...	0825	1.0	1720	7.6	.0	--	11.0	78	1.6	K7	--
30...	0940	30	840	7.9	.0	25	12.6	90	3.3	--	290
APR											
06...	1025	1500	380	8.0	.0	180	11.0	78	--	--	120
08...	0945	1180	395	7.8	.0	90	11.8	84	4.6	--	140
18...	1535	732	650	8.1	8.0	35	10.6	92	--	--	260
25...	1030	710	605	8.3	8.5	60	10.6	92	4.0	K10	230
JUN											
01...	1325	285	725	8.3	14.0	--	8.4	84	1.1	190	--
28...	1635	54	900	8.2	25.5	--	8.0	100	1.4	K12	--
JUL											
26...	1430	36	845	8.3	25.0	8	8.8	107	1.4	K140	320
AUG											
29...	0925	46	631	8.2	20.5	25	8.5	97	2.7	3100	220
SEP											
26...	1230	20	890	8.5	13.5	--	9.6	--	.6	36	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
25...	--	--	--	--	--	--	--	--	--	--	--
26...	160	98	40	73	27	1.6	7.9	300	0	250	3.0
27...	--	--	--	--	--	--	--	--	--	--	--
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
JAN											
03...	--	--	--	--	--	--	--	--	--	--	--
FEB											
01...	310	160	59	73	20	1.3	10	410	0	340	16
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
30...	140	79	23	62	31	1.6	7.4	190	0	160	3.8
APR											
06...	26	35	9.0	26	30	1.0	4.7	120	0	98	1.9
08...	43	37	12	23	25	.8	5.2	120	0	98	3.0
18...	91	66	24	40	24	1.1	8.2	210	0	170	2.7
25...	74	54	23	40	27	1.1	8.5	190	0	160	1.5
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
26...	95	74	32	58	28	1.4	11	270	0	220	2.2
AUG											
29...	68	55	21	48	31	1.4	8.2	190	0	160	1.9
SEP											
26...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05099380 PEMBINA RIVER NEAR VANG, ND

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
26...	280	15	.3	19	686	682	.93	11.9	.00	.00
27...	--	--	--	--	--	--	--	--	--	--
DEC										
07...	--	--	--	--	--	--	--	--	.09	.11
JAN										
03...	--	--	--	--	--	--	--	--	.10	.04
FEB										
01...	410	23	.3	17	1000	958	1.36	.22	.26	.11
22...	--	--	--	--	--	--	--	--	.08	--
MAR										
21...	--	--	--	--	--	--	--	--	.14	.01
30...	250	11	.4	16	558	548	.76	45.2	.97	.00
APR										
06...	82	4.4	.3	14	232	247	.32	940	2.7	.01
08...	89	5.6	.2	16	247	259	.34	787	2.9	.01
18...	150	13	.3	19	438	431	.60	866	1.4	.09
25...	120	12	.2	21	409	379	.56	784	1.3	.08
JUN										
01...	--	--	--	--	--	--	--	--	.12	.01
28...	--	--	--	--	--	--	--	--	.43	.01
JUL										
26...	200	13	.2	24	569	551	.77	55.3	.01	.00
AUG										
29...	160	15	.3	58	443	462	.60	55.0	.38	.05
SEP										
26...	--	--	--	--	--	--	--	--	.01	.02

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT						
26...	.00	.47	.07	.06	.18	170
DEC						
07...	.14	.22	.10	.06	.18	--
JAN						
03...	.05	.35	.08	.08	.25	--
FEB						
01...	.14	.56	.06	.04	.12	160
22...	--	.64	.05	.03	.09	--
MAR						
21...	.01	.71	.08	.04	.12	--
30...	.00	1.4	.14	.14	.43	130
APR						
06...	.01	5.4	.14	.11	.34	80
08...	.01	4.3	.25	.22	.67	80
18...	.12	2.6	.21	.19	.58	120
25...	.10	2.4	.22	.24	.74	120
JUN						
01...	.01	2.0	.12	.11	.34	--
28...	.01	.87	.15	.08	.25	--
JUL						
26...	.00	.68	.18	.17	.52	200
AUG						
29...	.06	1.6	.16	.16	.49	170
SEP						
26...	.03	.62	.13	.14	.43	--

05099380 PEMBINA RIVER NEAR VANG, ND

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT		
26...	100	110
FEB		
01...	30	2100
MAR		
30...	40	200
APR		
06...	120	180
08...	70	140
18...	30	50
25...	150	10
JUL		
26...	50	30
AUG		
29...	220	30

DATE	PCB, TOTAL (UG/L) (39516)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
OCT												
27...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
FEB												
01...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
APR												
25...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
AUG												
29...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
OCT											
27...	.00	.00	.00	.00	.00	.00	.00	0	.00	.01	.00
FEB											
01...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00
APR											
25...	.00	.00	.00	.00	.00	.00	.00	0	.00	.05	.00
AUG											
29...	.00	.00	.00	.00	.00	.00	.00	0	.00	.20	.00

05099380 PEMBINA RIVER NEAR VANG, ND

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM (70336)
OCT											
25...	--	41	.73	--	--	--	--	--	--	--	--
27...	.00	--	--	--	--	--	--	--	--	--	--
DEC											
07...	--	55	.30	--	--	--	--	--	--	--	--
JAN											
03...	--	40	.05	--	--	--	--	--	--	--	--
FEB											
01...	.00	152	.03	--	--	--	--	--	--	--	--
22...	--	40	.00	--	--	--	--	--	--	--	--
MAR											
30...	--	106	8.6	--	--	--	--	--	--	--	--
APR											
06...	--	5420	22000	66	90	97	98	99	99	99	100
08...	--	1840	5860	57	78	91	94	97	99	99	100
18...	--	1010	2000	57	80	90	92	93	96	98	100
25...	.00	652	1250	58	88	91	92	94	96	97	99
JUN											
01...	--	978	753	--	--	--	--	--	--	--	--
28...	--	17	2.5	--	--	--	--	--	--	--	--
JUL											
26...	--	24	2.3	--	--	--	--	--	--	--	--
AUG											
29...	.00	475	59	89	98	100	--	--	--	--	--
SEP											
26...	--	63	3.4	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
AUG										
29...	1	3	8	22	36	48	60	72	85	100

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Oct. 26, 1977		
1300	10.1	--
1400	10.2	--
1500	10.3	--
1600	10.4	--
1700	10.3	--
1800	10.4	--
1900	10.5	--
2000	10.5	--
2100	10.6	--
2200	10.6	--
2300	10.6	--
2400	10.7	--
Oct. 27, 1977		
0100	10.6	--
0200	10.5	--
0300	10.4	--
0400	10.4	--
0500	10.3	--
0600	10.2	--
0700	10.2	--
0800	10.2	--
0900	10.1	--
1000	10.6	
1100	10.6	
1200	10.6	--
1300	10.6	--
June 1, 1978		
1700	8.4	--
1800	8.4	14.0
1900	8.2	--
2000	8.0	--
2100	8.0	--
2200	8.0	--
2300	8.0	12.0
2400	8.0	--
June 2, 1978		
0100	8.0	--
0600	7.8	12.0
1000	8.4	12.0
1100	8.3	--
1200	8.5	--
1300	8.5	--
1400	8.6	14.0
1500	8.6	--
1600	8.5	--
1700	8.2	16.0
Sept. 29, 1978		
1200	8.5	18.0
1300	8.5	18.5
1400	8.5	--
1500	8.4	--
1600	8.4	--
1700	8.5	21.0
1800	8.3	--
1900	8.2	--
2000	8.2	--
2100	8.1	19.5
2200	8.2	--
2300	8.2	--
2400	8.3	--
Sept. 30, 1978		
0100	8.3	--
0200	8.3	17.0
0300	8.3	--
0400	8.4	--
0500	8.6	--
0600	8.7	--
0700	8.8	14.5
0800	8.9	--
0900	9.0	--
1000	9.0	--
1100	9.1	--
1200	9.2	16.5

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND

LOCATION.--Lat 48°51'55", long 98°00'20", in SW¼ sec.10, T.162 N., R.57 W., Cavalier County, Hydrologic Unit 09020313, on right bank 25 ft (8 m) upstream from county bridge, 3.5 mi (5.6 km) above mouth, and 6 mi (10 km) southwest of Walhalla.

DRAINAGE AREA.--182 mi², (471 km²), of which 10 mi² (26 km²) is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1956 to current year. Prior to October 1973, published as Little Pembina River near Walhalla.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,099.48 ft (335.122 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 10, 1956, nonrecording gage at bridge 25 ft (8 m) downstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated since March 1971 by Mt. Carmel Reservoir, 30 mi (48 km) upstream, capacity, 4,200 acre-ft (5.18 hm³).

AVERAGE DISCHARGE.--22 years, 22.4 ft³/s (0.634 m³/s), 16,230 acre-ft/yr (20.0 hm³/yr); median of yearly mean discharges, 19 ft³/s (0.54 m³/s), 13,800 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,600 ft³/s (187 m³/s) Apr. 25, 1970, gage height, 13.95 ft (4.252 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,600 ft³/s (45.3 m³/s) Apr. 6, gage height, 10.06 ft (3.066 m); minimum daily discharge, 0.03 ft³/s (0.001 m³/s) Sept. 3-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	1.3	2.0	.87	.30	.40	220	68	52	2.2	.23	.09
2	3.7	1.3	1.9	.87	.30	.40	110	63	29	1.8	.23	.04
3	3.4	1.1	1.5	.87	.30	.40	110	55	23	1.9	.23	.03
4	3.1	1.0	1.3	.87	.30	.40	130	48	16	2.9	.23	.03
5	3.1	1.1	1.3	.87	.30	.40	290	44	13	27	.10	.03
6	2.8	1.1	1.3	.85	.30	.40	1320	39	11	18	.10	.03
7	3.0	1.1	1.3	.80	.30	.40	760	35	11	7.2	.09	.03
8	4.6	1.1	1.3	.80	.30	.40	600	54	9.0	5.4	.08	.04
9	4.0	1.0	1.3	.75	.30	.40	1230	78	7.7	4.8	.08	.04
10	3.7	.62	1.3	.75	.30	.50	670	65	7.0	3.9	.08	.04
11	3.6	.49	1.3	.72	.30	.50	420	54	6.2	3.1	.07	.06
12	3.1	.49	1.3	.70	.30	.50	330	46	5.4	3.0	.06	8.0
13	2.7	.45	1.3	.70	.35	.60	200	36	5.3	2.4	.09	54
14	2.4	.45	1.3	.70	.35	.60	160	30	5.3	2.2	.09	12
15	2.3	.45	1.3	.65	.35	.60	180	24	5.0	2.2	.09	5.0
16	2.3	.45	1.3	.65	.35	.70	160	21	4.4	1.7	.08	4.7
17	2.2	.45	1.3	.60	.35	.70	170	18	4.0	1.5	.07	2.3
18	2.2	.45	1.3	.60	.40	.90	200	16	3.6	1.5	.06	2.2
19	2.0	.45	1.3	.55	.40	1.0	160	19	3.2	1.5	.05	2.0
20	2.0	.40	1.3	.50	.40	1.1	100	18	3.2	1.4	.04	1.7
21	1.8	.40	1.2	.50	.40	1.5	98	16	3.1	1.3	.04	1.3
22	1.8	.40	1.2	.45	.40	2.2	94	14	2.7	1.3	.04	1.3
23	1.7	.40	1.1	.40	.40	2.3	110	13	2.6	1.8	.06	1.0
24	1.7	.50	1.1	.40	.40	2.6	110	12	2.4	2.0	.06	1.1
25	1.5	.50	1.1	.35	.40	15	110	13	2.4	1.3	.06	.88
26	1.5	.60	1.0	.35	.40	28	110	54	2.7	.88	.10	.88
27	1.7	.60	.98	.35	.40	21	100	40	2.3	.76	25	.88
28	1.5	1.0	.95	.30	.40	26	97	32	2.0	.76	1.8	.88
29	1.3	1.5	.92	.30	---	54	100	19	1.7	.49	.62	.88
30	1.4	1.8	.90	.30	---	65	76	15	1.8	.36	.10	.88
31	1.4	---	.90	.30	---	230	---	18	---	.23	.08	---
TOTAL	77.8	22.95	38.85	18.67	9.75	458.90	8525	1077	248.0	106.78	30.11	102.34
MEAN	2.51	.77	1.25	.60	.35	14.8	284	34.7	8.27	3.44	.97	3.41
MAX	4.6	1.8	2.0	.87	.40	230	1320	78	52	27	25	54
MIN	1.3	.40	.90	.30	.30	.40	76	12	1.7	.23	.04	.03
AC-FT	154	46	77	37	19	910	16910	2140	492	212	60	203

CAL YR 1977 TOTAL 1472.83 MEAN 4.04 MAX 145 MIN .00 AC-FT 2920
WTR YR 1978 TOTAL 10716.15 MEAN 29.4 MAX 1320 MIN .03 AC-FT 21260

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER-QUALITY RECORD

PERIOD OF RECORD.--Water years 1962 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
27...	1045	1.7	935	8.0	7.0	8	10.8	92	.7	33	370
DEC											
07...	1215	1.3	915	7.7	.0	--	12.2	87	1.5	K7	--
JAN											
04...	1050	.87	910	7.8	.5	--	12.4	90	.1	1100	--
FEB											
01...	1055	.28	860	7.8	.0	2	11.4	81	--	39	390
01...	1115	.28	--	--	.0	--	--	--	--	--	--
23...	0850	.40	850	7.4	.5	--	11.0	80	.8	K9	--
MAR											
21...	1400	1.4	860	7.9	.0	--	12.1	86	--	K120	--
27...	1425	18	775	--	.5	--	--	--	--	--	--
29...	1605	53	660	7.9	.0	25	13.0	93	2.9	--	190
APR											
05...	1700	282	380	8.0	.5	110	12.0	87	--	--	120
07...	0920	689	390	8.1	.0	70	13.2	94	3.9	--	130
08...	1440	505	420	8.2	1.0	60	12.8	93	3.7	--	150
09...	1350	1190	375	--	2.0	--	--	--	--	--	--
25...	1500	107	490	8.0	11.0	50	10.1	95	.5	K50	160
MAY											
30...	1540	14	800	8.3	21.5	--	8.4	98	--	103	--
JUN											
28...	1040	2.0	910	8.2	21.5	--	8.2	96	--	410	--
JUL											
27...	0855	.76	910	8.0	16.5	6	7.9	84	--	370	340
AUG											
28...	1405	2.1	870	8.2	22.5	8	7.8	93	1.7	1200	330
SEP											
26...	0915	1.0	850	8.0	12.0	--	7.4	--	.5	130	--

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
27...	140	100	28	72	29	1.6	9.4	280	0	230	4.5
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
JAN											
04...	--	--	--	--	--	--	--	--	--	--	--
FEB											
01...	130	110	29	58	24	1.3	6.8	320	0	260	8.1
01...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	54	51	16	57	38	1.8	6.1	170	0	140	3.4
APR											
05...	33	34	9.3	27	31	1.1	4.5	110	0	90	1.8
07...	24	36	9.9	27	30	1.0	4.7	130	0	110	1.7
08...	37	41	12	31	30	1.1	5.3	140	0	110	1.4
09...	--	--	--	--	--	--	--	--	--	--	--
25...	25	41	13	39	34	1.4	6.4	160	0	130	2.6
MAY											
30...	--	--	--	--	--	--	--	--	--	--	--
JUN											
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	110	93	26	68	30	1.6	11	280	0	230	4.5
AUG											
28...	120	92	24	70	31	1.7	9.9	260	0	210	2.6
SEP											
26...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT										
27...	250	19	.4	17	641	636	.87	2.94	.26	.00
DEC										
07...	--	--	--	--	--	--	--	--	.54	.08
JAN										
04...	--	--	--	--	--	--	--	--	.63	.04
FEB										
01...	220	21	.4	20	615	627	.84	.46	.79	.06
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	.81	.03
MAR										
21...	--	--	--	--	--	--	--	--	.60	.06
27...	--	--	--	--	--	--	--	--	--	--
29...	140	25	.2	16	431	400	.59	61.7	.91	.00
APR										
05...	85	5.1	.2	17	246	253	.33	187	3.6	.00
07...	74	5.8	.2	16	244	249	.33	454	2.4	.00
08...	90	7.1	.2	17	280	284	.38	382	2.3	.01
09...	--	--	--	--	--	--	--	--	--	--
25...	100	7.4	.2	20	314	312	.43	90.7	1.2	.05
MAY										
30...	--	--	--	--	--	--	--	--	.20	.00
JUN										
28...	--	--	--	--	--	--	--	--	.03	.01
JUL										
27...	230	18	.4	24	610	609	.83	1.25	.02	.00
AUG										
28...	240	27	.6	27	617	621	.84	3.50	.43	.04
SEP										
26...	--	--	--	--	--	--	--	--	.00	.02

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT						
27...	.00	.26	.08	.07	.21	160
DEC						
07...	.10	.14	.12	.07	.21	--
JAN						
04...	.05	.15	.11	.14	.43	--
FEB						
01...	.08	.20	.12	.10	.31	120
23...	.04	.08	.11	.09	.28	--
MAR						
21...	.08	1.3	.14	.08	.25	--
29...	.00	2.6	.20	.07	.21	120
APR						
05...	.00	6.7	.28	.24	.74	70
07...	.00	4.1	.20	.17	.52	60
08...	.01	3.6	.22	.19	.56	70
25...	.06	1.9	.21	.23	.71	100
MAY						
30...	.00	.61	.16	.14	.43	--
JUN						
28...	.01	.32	.14	.11	.34	--
JUL						
27...	.00	.45	.13	.10	.31	190
AUG						
28...	.05	.89	.15	.14	.43	200
SEP						
26...	.03	.53	.07	.08	.25	--

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT		
27...	50	130
FEB		
01...	10	170
MAR		
29...	20	40
APR		
05...	60	20
07...	60	40
08...	50	20
25...	110	0
JUL		
27...	30	150
AUG		
28...	20	40

DATE	PCB, TOTAL (UG/L) (39516)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
OCT												
27...	.0	.00	.00	.0	.00	.00	.00	--	.00	.00	.00	--
FEB												
01...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
APR												
25...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
AUG												
28...	.0	.00	.00	.0	.00	.00	.00	.00	.00	--	.00	.00

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
OCT											
27...	.00	.00	.00	--	--	--	--	0	--	.00	.00
FEB											
01...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00
APR											
25...	.00	.00	.00	.00	.00	.00	.00	0	.00	--	--
AUG											
28...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM (70336)
OCT											
27...	.00	9	.04	--	--	--	--	--	--	--	--
DEC											
07...	--	11	.04	--	--	--	--	--	--	--	--
JAN											
04...	--	10	.02	--	--	--	--	--	--	--	--
FEB											
01...	.00	--	--	--	--	--	--	--	--	--	--
01...	--	28	.02	--	--	--	--	--	--	--	--
23...	--	14	.02	--	--	--	--	--	--	--	--
MAR											
21...	--	21	.08	--	--	--	--	--	--	--	--
29...	--	948	136	68	94	96	99	99	99	99	100
APR											
05...	--	3300	2510	55	81	93	94	96	98	99	100
07...	--	2800	5210	45	64	73	78	85	91	96	99
08...	--	2200	3000	48	69	79	81	85	92	97	99
09...	--	4430	14200	--	--	--	--	--	--	--	--
25...	--	476	138	48	62	64	64	65	69	89	99
MAY											
30...	--	54	2.0	--	--	--	--	--	--	--	--
JUN											
28...	--	27	.15	--	--	--	--	--	--	--	--
JUL											
27...	--	21	.04	--	--	--	--	--	--	--	--
AUG											
28...	.00	163	.92	79	97	100	--	--	--	--	--
SEP											
26...	--	72	.19	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT										
27...	--	--	--	--	--	--	--	--	--	--
DEC										
07...	--	--	--	--	--	--	--	--	--	--
JAN										
04...	--	--	--	--	--	--	--	--	--	--
FEB										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
MAR										
21...	--	--	--	--	--	--	--	--	--	--
29...	1	4	11	25	29	47	72	92	99	100
APR										
05...	0	1	7	22	26	42	66	88	97	100
07...	0	2	10	26	31	50	72	90	97	100
08...	0	0	2	12	22	37	58	81	92	100
09...	--	--	--	--	--	--	--	--	--	--
25...	0	2	8	24	30	47	67	84	94	100
MAY										
30...	--	--	--	--	--	--	--	--	--	--
JUN										
28...	--	--	--	--	--	--	--	--	--	--
JUL										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
28...	0	1	6	20	36	56	71	87	95	100
SEP										
26...	--	--	--	--	--	--	--	--	--	--

05099400 LITTLE SOUTH PEMBINA RIVER NEAR WALHALLA, ND--Continued

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Oct. 27, 1977		
1400	10.8	--
1500	11.0	--
1600	10.9	--
1700	10.9	--
1800	10.8	--
1900	10.6	7.0
2000	10.5	--
2100	10.4	--
2200	10.3	--
2300	10.3	--
2400	10.2	7.0
Oct. 28, 1977		
0500	10.3	--
0600	10.2	5.0
0700	10.3	--
0800	10.4	5.0
0900	11.0	4.0
1000	11.2	--
1100	11.3	--
1200	11.4	--
1300	11.4	--
1400	11.5	6.0
Feb. 23, 1978		
1000	10.9	.5
1100	11.5	.5
1200	11.6	.5
1300	11.5	.5
1400	11.5	.5
1600	11.8	.5
1700	11.8	.5
1900	11.7	.5
2000	11.5	.5
2100	11.6	.5
2200	11.7	0.5
2300	11.6	.5
2400	11.6	.5
Feb. 24, 1978		
0100	11.6	.5
0200	11.6	.5
0300	11.6	.5
0400	11.6	.5
0500	11.6	.5
0600	11.6	.5
0700	11.6	.5
0800	11.6	.5
0900	11.7	.5
May 30, 1978		
1400	8.6	--
1500	8.4	21.0
1600	8.2	--
1700	8.0	--
1800	7.7	--
1900	7.6	20.0
2000	7.7	--
2100	7.7	--
2200	7.8	--
2300	8.0	--
2400	8.2	--
May 31, 1978		
0100	8.3	--
0200	8.4	--
0300	8.4	--
0400	8.4	--
0500	8.4	--
0600	8.5	--
0700	8.6	13.0
0800	8.7	--
0900	8.7	--
1000	8.8	--
1100	8.8	13.0
1200	8.9	--
1300	9.0	--
1400	9.2	15.0
Aug. 28, 1978		
1100	8.2	--
1200	8.2	19.5
1300	8.1	--
1400	7.8	--
1500	7.6	--
1600	7.3	24.0
1700	7.2	--
1800	7.1	--
1900	7.1	--
2000	7.0	21.0
2100	6.9	--
2200	6.6	--
2300	7.0	--
2400	7.0	--
Aug. 29, 1978		
0100	7.0	17.0
0200	7.0	
0300	7.1	--
0400	7.2	--
0500	7.3	--
0600	7.4	14.5
0700	7.5	--
0800	7.6	--
0900	7.8	--
1000	8.0	--
1100	8.2	17.0

05099600 PEMBINA RIVER AT WALHALLA, ND

LOCATION.--Lat 48°54'50", long 97°55'00", in NE¼NE¼ sec.29, T.163 N., R.56 W., Pembina County, Hydrologic Unit 09020313, on left bank at downstream side of bridge on State Highway 32, at south edge of Walhalla, and 7 mi (11 km) downstream from Little South Pembina River.

DRAINAGE AREA.--3,350 mi² (8,680 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1963, published as "near Walhalla."

REVISED RECORDS.--WSP 1388: 1943, 1950(P). WSP 1558: 1957. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 934 ft (284.7 m), from topographic map. Prior to Nov. 10, 1943, nonrecording gage and Nov. 10, 1943, to Sept. 30, 1963, water-stage recorder at site 5.5 mi (8.8 km) upstream at different datum.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--39 years, 241 ft³/s (6.825 m³/s) 174,600 acre-ft/yr (215 hm³/yr); median of yearly mean discharges, 170 ft³/s (4.81 m³/s), 123,000 acre-ft/yr (150 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s (578 m³/s) Apr. 18, 1950, gage height, 19.2 ft (5.85 m) former site and datum, 16.2 ft (4.938 m) present site and datum, from rating curve extended above 7,000 ft³/s (198 m³/s) on basis of contracted-opening measurement of peak flow; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 1	--	a900	25.5	--	--	May 26	0730	410	11.6	3.89	1.186
Apr. 6	2030	a*3,800	108	*9.97	3.039	Jun. 1	0500	470	13.3	4.08	1.244
Apr. 9	0730	3,480	98.6	8.58	2.615						

Minimum daily, 0.10 ft³/s (0.003 m³/s) Mar. 4-21.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	12	7.0	6.0	1.0	.80	670	705	380	56	35	43
2	34	12	7.0	6.0	1.0	.50	560	655	272	59	36	35
3	43	12	7.0	5.8	1.0	.20	410	618	255	56	36	33
4	43	12	6.8	5.6	1.0	.10	410	569	235	62	35	31
5	38	12	6.8	5.4	1.0	.10	623	558	215	92	35	31
6	33	12	6.7	5.2	1.1	.10	2870	524	203	70	38	30
7	33	12	6.5	5.0	1.1	.10	2400	506	189	62	37	29
8	39	12	6.5	4.8	1.1	.10	2020	554	182	56	37	27
9	29	12	6.5	4.5	1.1	.10	3090	605	172	57	36	27
10	21	11	6.5	4.0	1.2	.10	2420	537	166	59	34	26
11	19	11	6.5	3.5	1.2	.10	1720	521	160	58	33	27
12	18	10	6.5	3.0	1.2	.10	1580	488	150	56	33	48
13	18	10	6.5	2.8	1.2	.10	1150	461	143	55	45	220
14	16	9.8	6.5	2.5	1.3	.10	849	440	137	53	46	74
15	16	9.5	6.5	2.3	1.3	.10	866	416	134	53	43	52
16	15	9.5	6.5	2.2	1.3	.10	890	395	126	51	41	43
17	15	9.0	6.2	2.1	1.3	.10	890	374	110	47	39	38
18	15	8.8	6.0	2.0	1.4	.10	980	353	99	57	38	33
19	15	8.5	6.0	1.9	1.4	.10	902	362	94	50	36	33
20	14	8.5	6.0	1.8	1.4	.10	788	365	94	46	34	30
21	14	8.0	6.0	1.7	1.4	.10	794	341	89	44	33	29
22	14	8.0	6.0	1.6	1.4	.20	794	310	85	44	33	26
23	14	8.0	6.0	1.5	1.4	.50	844	287	81	45	35	25
24	14	7.8	6.0	1.4	1.4	1.0	832	287	77	45	35	24
25	14	7.5	6.0	1.3	1.4	10	816	296	74	44	36	24
26	14	7.5	6.0	1.2	1.4	20	794	410	70	43	50	22
27	13	7.5	6.0	1.2	1.2	40	788	370	67	42	200	22
28	13	7.2	6.0	1.1	1.0	80	788	330	63	40	100	22
29	12	7.0	6.0	1.1	---	120	800	290	59	38	62	22
30	12	7.0	6.0	1.0	---	120	756	269	57	38	41	22
31	12	---	6.0	1.0	---	300	---	252	---	36	38	---
TOTAL	638	289.1	196.5	90.5	34.2	695.00	34094	13468	4238	1614	1410	1148
MEAN	20.6	9.64	6.34	2.92	1.22	22.4	1136	434	141	52.1	45.5	38.3
MAX	43	12	7.0	6.0	1.4	300	3090	705	380	92	200	220
MIN	12	7.0	6.0	1.0	1.0	.10	410	252	57	36	33	22
AC-FT	1270	573	390	180	68	1380	67630	26710	8410	3200	2800	2280

CAL YR 1977 TOTAL 7844.40 MEAN 21.5 MAX 253 MIN 1.9 AC-FT 15560
WTR YR 1978 TOTAL 57915.30 MEAN 159 MAX 3090 MIN .10 AC-FT 114900

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1962 to September 1972, October 1974 to current year.
WATER TEMPERATURES: April 1962 to September 1972, October 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since August 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,290 micromhos Feb. 17, 1972; minimum daily, 223 micromhos Apr. 9, 1971.
WATER TEMPERATURES: Maximum daily, 31.0°C July 24, 1963; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,060 micromhos Dec. 3, 5; minimum daily, 300 micromhos Mar. 22.
WATER TEMPERATURES: Maximum daily, 23.0°C July 1, 2, 3, 17; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT											
25...	1405	14	930	--	12.5	--	--	--	--	--	--
26...	0900	13	900	7.8	8.0	7	10.1	88	1.9	27	--
27...	1730	13	950	7.6	11.0	--	--	--	--	--	--
DEC											
06...	1410	6.7	825	7.1	.0	4	10.1	72	1.5	K6	--
JAN											
03...	1615	5.8	950	7.6	.5	6	11.0	79	.6	K5	--
30...	1740	.99	850	--	.0	--	--	--	--	--	--
31...	1230	.99	850	7.8	.0	1	9.0	64	--	K30	--
FEB											
21...	1650	1.4	750	7.7	.0	1	9.8	94	.2	<1	--
MAR											
20...	1450	.11	755	7.6	.0	1	10.6	75	.4	2	--
29...	1215	120	740	7.8	.0	--	12.2	85	3.1	--	--
30...	1330	123	700	--	.0	--	--	--	--	--	--
APR											
05...	1505	575	405	--	.5	--	--	--	--	--	--
06...	1445	2780	345	8.1	.5	--	--	--	--	--	--
07...	1540	1950	375	8.1	.5	--	11.1	80	4.7	--	--
09...	1115	3360	360	--	1.0	--	--	--	--	--	--
14...	0920	892	434	7.8	1.5	--	13.0	89	2.4	--	--
19...	0840	936	640	--	4.5	--	--	--	--	--	--
24...	1250	830	610	8.3	10.5	60	10.7	98	3.3	K10	--
MAY											
31...	0955	254	790	8.3	14.0	23	7.0	70	.6	77	--
JUN											
27...	1335	--	--	--	--	--	--	--	1.4	--	--
27...	1355	67	860	8.3	25.0	5	6.4	79	--	280	295
JUL											
26...	0930	43	845	8.3	22.0	9	8.2	96	1.8	130	--
AUG											
30...	0920	43	710	--	15.5	--	--	--	2.2	--	--
30...	1400	43	691	8.1	19.5	22	9.0	101	--	K2200	--
SEP											
25...	1240	22	890	8.3	13.5	15	--	--	.8	--	--

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT											
26...	400	140	100	36	58	24	1.3	7.9	320	0	260
27...	--	--	--	--	--	--	--	--	--	--	--
DEC											
06...	490	170	130	41	55	19	1.1	7.9	400	0	330
JAN											
03...	450	140	120	37	44	17	.9	6.9	380	0	310
31...	410	99	110	33	26	12	.6	5.3	380	0	310
FEB											
21...	390	74	110	29	27	13	.6	.5	390	0	320
MAR											
20...	390	99	110	29	24	12	.5	4.9	360	0	300
APR											
24...	220	63	53	21	39	27	1.1	8.1	190	0	160
MAY											
31...	310	93	73	32	54	26	1.3	10	270	0	220
JUN											
27...	360	100	82	37	59	26	1.4	11	310	0	250
JUL											
26...	330	100	81	31	58	27	1.4	11	280	0	230
AUG											
30...	260	83	66	24	48	28	1.3	8.5	220	0	180
SEP											
25...	370	110	91	34	58	25	1.3	9.2	310	0	250

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT											
25...	--	--	--	--	--	--	--	--	--	--	--
26...	8.1	240	14	.4	18	650	633	.88	22.8	.02	.01
27...	--	--	--	--	--	--	--	--	--	--	--
DEC											
06...	51	260	20	.4	23	720	736	.98	13.0	.17	.12
JAN											
03...	15	220	16	.3	21	656	654	.89	10.3	.20	.11
30...	--	--	--	--	--	--	--	--	--	--	--
31...	9.6	140	8.8	.3	18	553	530	.75	1.48	.08	.08
FEB											
21...	12	110	7.7	.4	22	445	500	.61	1.68	.08	.01
MAR											
20...	14	130	8.6	.3	20	508	506	.69	.15	.13	.01
29...	--	--	--	--	--	--	--	--	--	1.3	.00
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	3.0	.01
07...	--	--	--	--	--	--	--	--	--	2.4	.00
09...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	2.1	.08
19...	--	--	--	--	--	--	--	--	--	--	--
24...	1.5	150	10	.2	20	398	402	.54	892	1.4	.09
MAY											
31...	2.2	190	13	.1	5.7	712	512	.97	488	.02	.01
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--
27...	2.5	230	13	.3	25	602	611	.82	109	.01	.01
JUL											
26...	2.2	190	13	.3	27	566	550	.77	65.7	.03	.02
AUG											
30...	--	--	--	--	--	--	--	--	--	--	--
30...	2.8	160	10	.3	25	488	452	.66	56.7	.29	.05
SEP											
25...	2.5	210	15	.3	20	600	591	.82	35.6	.03	.24

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)
OCT							
26...	.01	.38	.05	.03	.09	40	3
DEC							
06...	.15	.35	.06	.04	.12	--	--
JAN							
03...	.14	.63	.04	.01	.03	--	--
31...	.10	.26	.05	.03	.09	--	--
FEB							
21...	.01	.24	.04	.04	.12	--	--
MAR							
20...	.01	.23	.04	.03	.09	--	--
29...	.00	1.2	.14	.13	.40	--	--
APR							
06...	.01	14	.12	.08	.25	--	--
07...	.00	6.0	.18	.14	.43	--	--
14...	.10	1.6	.19	.09	.28	--	--
24...	.12	2.5	.21	.16	.49	0	5
MAY							
31...	.01	1.8	.12	.11	.34	--	--
JUN							
27...	.01	.53	.13	.11	.34	--	--
JUL							
26...	.03	.72	.14	.11	.34	--	--
AUG							
30...	.06	2.5	.16	.15	.46	--	--
SEP							
25...	.31	.54	.09	.01	.03	--	--

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT						
26...	0	150	1	10	0	3
DEC						
06...	--	130	--	--	--	--
JAN						
03...	--	120	--	--	--	--
31...	--	90	--	--	--	--
FEB						
21...	--	90	--	--	--	--
MAR						
20...	--	80	--	--	--	--
APR						
24...	0	120	--	0	0	2
MAY						
31...	--	160	--	--	--	--
JUN						
27...	--	170	--	--	--	--
JUL						
26...	--	190	--	--	--	--
AUG						
30...	--	170	--	--	--	--
SEP						
25...	--	180	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
26...	40	8	60	180	.0	3	4	1	490	1.4	10	.00
DEC												
06...	10	--	--	460	--	--	--	--	--	--	--	--
JAN												
03...	20	--	--	640	--	--	--	--	--	--	--	--
31...	20	--	--	740	--	--	--	--	--	--	--	--
FEB												
21...	120	--	--	860	--	--	--	--	--	--	--	--
MAR												
20...	130	--	--	520	--	--	--	--	--	--	--	--
APR												
24...	--	--	40	10	.0	0	2	0	280	1.0	10	.00
MAY												
31...	50	--	--	20	--	--	--	--	--	--	--	--
JUN												
27...	10	--	--	60	--	--	--	--	--	--	--	--
JUL												
26...	20	--	--	60	--	--	--	--	--	--	--	--
AUG												
30...	30	--	--	50	--	--	--	--	--	--	--	--
SEP												
25...	20	--	--	120	--	--	--	--	--	--	--	--

DATE	PCB, TOTAL (UG/L) (39516)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
OCT												
27...	.0	.00	.00	.0	.00	.00	.00	--	.00	.00	.00	--
JAN												
31...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
APR												
24...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
JUL												
26...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
OCT											
27...	.00	.00	.00	--	--	--	--	0	--	.01	.00
JAN											
31...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00
APR											
24...	.00	.00	.00	.00	.00	.00	.00	0	.00	.06	.00
JUL											
26...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM (70336)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
OCT											
25...	--	29	1.1	--	--	--	--	--	--	--	--
27...	.00	--	--	--	--	--	--	--	--	--	--
DEC											
06...	--	49	.89	--	--	--	--	--	--	--	--
JAN											
03...	--	184	2.9	--	--	--	--	--	--	--	--
31...	.00	414	1.1	--	--	--	--	--	--	--	--
FEB											
21...	--	214	.81	--	--	--	--	--	--	--	--
MAR											
29...	--	418	135	--	--	--	--	--	--	--	--
30...	--	592	197	--	--	--	--	--	--	--	--
APR											
06...	--	6970	52300	60	81	92	93	96	99	999	--
07...	--	3070	16200	55	78	91	93	95	99	99	2
09...	--	5880	53300	--	--	--	--	--	--	--	--
14...	--	1605	3870	57	80	91	93	95	98	100	0
24...	.00	1050	2350	46	62	68	69	71	75	82	0
MAY											
31...	--	154	106	--	--	--	--	--	--	--	--
JUN											
27...	--	42	7.6	--	--	--	--	--	--	--	--
JUL											
26...	.00	18	2.1	--	--	--	--	--	--	--	--
AUG											
30...	--	275	32	88	99	100	--	--	--	--	0
30...	--	--	--	--	--	--	--	--	--	--	--
SEP											
25...	--	46	2.7	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
APR									
06...	--	--	--	--	--	--	--	--	--
07...	6	12	23	28	45	70	89	98	100
09...	--	--	--	--	--	--	--	--	--
14...	1	18	50	55	68	80	91	95	100
24...	0	7	29	41	60	76	90	96	--
AUG									
30...	1	4	27	50	64	76	88	96	100

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	820	940	990	950	850	820	380	680	790	875	860	750
2	850	940	1000	950	850	830	440	---	800	875	860	780
3	840	920	1060	970	860	930	500	675	800	875	860	800
4	900	950	1050	980	850	---	580	675	800	810	860	820
5	900	940	1060	950	850	---	465	660	790	775	860	840
6	880	950	1030	960	840	---	390	660	790	750	860	850
7	850	950	1020	970	840	---	380	665	800	775	810	850
8	800	960	1050	990	830	---	400	---	800	845	825	850
9	880	960	1050	970	---	---	370	680	810	850	830	850
10	875	980	1030	960	---	930	420	690	810	850	830	850
11	890	960	1030	970	---	---	460	700	825	840	825	840
12	880	980	1010	975	---	---	480	700	825	840	---	760
13	900	990	1000	975	880	---	480	700	825	850	---	625
14	900	980	1000	960	890	---	490	---	825	850	---	610
15	910	1010	1000	950	830	---	520	690	810	700	---	740
16	890	1010	1000	940	830	---	540	705	825	---	---	750
17	940	990	1010	950	840	---	560	660	850	700	---	800
18	940	1000	1030	960	840	---	580	660	830	800	---	840
19	940	1000	1040	950	---	---	640	---	830	825	---	850
20	940	970	1020	960	810	---	600	---	800	800	---	850
21	950	970	1010	970	820	790	640	---	820	770	---	850
22	940	970	1010	960	---	500	660	---	850	700	---	860
23	950	990	1010	900	860	550	600	775	875	825	---	---
24	950	1010	---	870	790	830	610	775	875	830	---	---
25	960	---	---	915	790	680	630	775	875	830	---	880
26	940	---	990	960	780	850	625	650	875	825	---	890
27	910	---	970	900	780	890	625	---	800	830	---	890
28	940	970	960	975	810	750	660	---	875	840	---	890
29	940	960	960	940	---	780	660	---	875	---	695	900
30	890	980	950	930	---	710	650	750	880	850	720	880
31	930	---	950	910	---	615	---	795	---	850	740	---
MEAN	903	971	1010	951	833	766	537	701	828	815	817	819

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	6.0	.0	.0	.0	.0	.0	11.0	11.0	23.0	18.0	18.0
2	7.0	4.5	.0	.0	.0	.0	.0	---	11.0	23.0	16.0	19.0
3	7.5	3.0	.0	.0	.0	.0	.0	13.0	14.0	23.0	14.0	21.5
4	10.0	1.0	.0	.0	.0	---	.0	13.0	20.0	21.5	14.0	21.0
5	6.0	4.0	.0	.0	.0	---	.0	13.5	15.0	21.0	16.0	20.0
6	6.5	9.0	.0	.0	.0	---	2.0	14.0	18.0	22.0	18.0	19.0
7	7.0	9.0	.0	.0	.0	---	2.0	14.0	13.0	21.0	20.0	19.0
8	6.5	6.0	.0	.0	.0	---	.0	---	15.0	19.0	19.5	19.0
9	6.0	1.0	.0	.0	---	---	1.0	9.0	13.0	20.0	16.5	19.0
10	5.0	.0	.0	.0	---	.0	1.0	12.0	16.0	16.0	19.0	20.0
11	5.0	.0	.0	.0	---	---	1.0	12.0	16.0	18.0	20.0	18.0
12	4.0	.0	.0	.0	---	---	1.0	11.0	13.0	20.0	---	13.0
13	7.0	.5	.0	.0	.0	---	1.0	12.0	15.0	18.0	---	10.0
14	6.5	.0	.0	.0	.0	---	2.0	---	18.0	20.0	---	12.0
15	7.0	.0	.0	.0	.0	---	3.0	14.0	19.5	21.5	---	11.0
16	10.0	.0	.0	.0	.0	---	3.0	15.0	20.0	---	---	11.0
17	7.0	.5	.0	.0	.0	---	4.0	17.0	22.0	23.0	---	13.0
18	5.0	.0	.0	.0	.0	---	6.0	17.5	20.0	22.0	---	13.0
19	5.5	.0	.0	.0	---	---	4.0	---	19.0	22.0	---	11.5
20	6.5	.0	.0	.0	.0	---	2.0	---	15.0	19.0	---	9.0
21	4.5	.0	.0	.0	.0	1.0	4.0	---	17.0	19.0	---	9.0
22	2.0	.0	.0	.0	---	.0	6.0	---	18.0	21.0	---	9.0
23	2.0	.0	.0	.0	.0	.0	8.0	19.0	19.0	20.0	---	---
24	4.5	.0	---	.0	.0	.0	8.0	19.0	18.0	20.0	---	---
25	5.5	---	---	.0	.0	.0	8.0	20.0	18.0	21.0	---	11.0
26	8.0	---	.0	.0	.0	.0	9.0	19.0	18.0	20.0	---	11.5
27	6.0	---	.0	.0	.0	.0	10.0	---	19.0	18.0	---	9.0
28	4.0	.0	.0	.0	.0	1.0	12.0	---	20.0	18.0	---	9.0
29	8.0	.0	.0	.0	---	.0	12.0	---	21.0	---	16.0	10.0
30	11.0	.0	.0	.0	---	.5	12.0	17.0	22.0	21.0	13.0	11.0
31	6.5	---	.0	.0	---	1.0	---	16.0	---	17.0	15.0	---
MEAN	6.5	1.5	.0	.0	.0	.0	4.0	14.5	17.0	20.5	17.0	14.0

05099600 PEMBINA RIVER AT WALHALLA, ND--Continued

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Oct. 25, 1977		
1200	11.4	--
1300	11.1	--
1400	11.0	--
1500	10.8	--
1600	10.7	--
1700	10.5	--
1800	10.3	--
1900	10.1	--
2000	9.8	--
2100	9.8	--
2200	9.9	--
2300	9.9	--
2400	9.9	--
Oct. 26, 1977		
0100	9.9	--
0200	9.9	
0300	9.8	--
0400	9.8	--
0500	10.0	--
0600	10.0	--
0700	10.1	--
0800	10.1	--
0900	10.2	--
1000	10.4	--
1100	10.6	--
1200	10.8	--
Feb. 21, 1978		
1900	10.1	0.0
2000	9.8	.0
2100	9.9	.0
2200	9.9	.0
2300	10.0	.0
2400	10.1	.0
Feb. 22, 1978		
0100	10.2	0.0
0200	10.1	.0
0300	9.9	.0
0400	9.9	.0
0500	9.8	.0
0600	9.8	.0
0700	9.8	.0
0800	9.8	.0
0900	9.8	.0
1000	9.9	.0
1100	10.0	.0
1200	10.1	.0
1300	10.1	.0
1400	10.2	.0
1500	10.3	.0
1600	10.3	.0
1700	10.3	.0
1800	10.2	.0
1900	10.0	.0
May 31, 1978		
1500	7.0	15.0
1600	7.2	--
1700	7.4	--
1800	7.8	--
1900	8.1	--
2000	8.0	16.0
2100	8.0	--
2200	8.0	--
Jun. 1, 1978		
0100	7.1	15.0
0200	7.0	--
0300	6.9	--
0400	6.9	--
0500	6.9	--
0600	6.9	13.0
0700	7.4	--
0800	7.7	--
0900	8.0	--
1000	8.4	13.0
1100	8.4	--
1200	8.4	--
1300	8.3	--
1400	8.3	--
1500	8.2	13.0
Aug. 30, 1978		
1000	9.0	15.5
1100	9.0	16.0
1200	9.0	17.0
1300	9.0	18.0
1400	9.0	19.0
1500	8.8	--
1600	8.6	--
1700	8.4	21.0
1800	8.3	--
1900	8.3	--
2000	8.3	--
2100	8.2	19.5
2200	8.1	--
2300	8.1	--
2400	8.2	--
Aug. 31, 1978		
0100	8.2	--
0200	8.2	18.5
0300	8.2	--
0400	8.2	--
0500	8.2	--
0600	8.3	--
0700	8.4	16.0
0800	8.5	--
0900	8.7	--
1000	8.8	17.0

05100000 PEMBINA RIVER AT NECHE, ND
(International gaging station)

LOCATION.--Lat 48°59'20", long 97°33'05", in SE¼NW¼ sec.31, T.164 N., R.53 W., Pembina County, Hydrologic Unit 09020313, on right bank 0.3 mi (0.5 km) east of State Highway 18, and at north edge of Neche.

DRAINAGE AREA.--3,410 mi² (8,830 km²), approximately.

PERIOD OF RECORD.--May 1903 to September 1908, June 1909 to September 1915, April 1919 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1904-8, 1910-15, 1920, 1921, 1923, 1924. WSP 1388: 1904(M), 1914, 1915(M), 1931(M), 1933, 1938(M). WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 809.69 ft (246.794 m) National Geodetic Vertical Datum of 1929. Prior to May 24, 1932, nonrecording gage at Burlington Northern Railway bridge 1 mi (2 km) upstream, at same datum. May 25, 1932, to Apr. 17, 1939, nonrecording gage on bridge on State Highway 18, 500 ft (150 m) downstream from railway bridge, at same datum.

REMARKS.--Records good except those for the winter period, which are fair.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--70 years (1903-8, 1909-15, 1919-78), 192 ft³/s (5.437 m³/s), 139,100 acre-ft/yr (172 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 101,000 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s (303 m³/s) Apr. 20, 1950, gage height, 21.58 ft (6.578 m), backwater from ice; from rating curve extended above 5,300 ft³/s (150 m³/s); maximum gage height, 22.92 ft (6.986 m) Apr. 28, 1974; no flow at times each year 1932-41, 1953, 1960-62.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 11	0400	[a]*3,800	108	*19.31	5.886	Jun. 3	--	500	14.2	--	--
May 28	--	450	12.7	--	--						

Minimum daily discharge, 0.01 ft³/s (<0.001 m³/s) Mar. 7-15.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	15	7.0	5.5	1.5	.10	9.0	828	370	74	45	48
2	39	15	7.0	5.5	1.4	.10	50	782	390	70	41	46
3	34	16	7.0	5.5	1.3	.10	150	756	410	68	45	46
4	33	15	7.0	5.5	1.2	.08	150	724	330	77	45	44
5	39	14	6.5	5.5	1.0	.06	150	710	300	84	43	44
6	41	14	6.5	5.5	.80	.03	300	652	270	94	43	41
7	44	14	6.0	5.0	.70	.01	1880	613	250	112	41	34
8	44	14	6.0	5.0	.60	.01	3150	588	246	96	37	31
9	44	14	6.0	4.5	.50	.01	2790	588	234	86	35	31
10	41	13	6.0	4.2	.40	.01	3150	582	230	79	35	33
11	41	12	6.0	3.3	.40	.01	3380	582	219	77	34	34
12	39	12	6.0	2.4	.30	.01	2090	582	208	77	34	46
13	37	11	6.0	2.4	.30	.01	1460	576	200	77	41	57
14	34	11	6.0	2.4	.20	.01	1310	576	189	72	25	106
15	33	11	6.0	2.4	.10	.01	1060	528	182	70	31	155
16	30	10	6.0	2.4	.10	.02	1050	498	175	70	41	95
17	26	9.8	6.0	2.0	.10	.03	1040	486	164	65	41	80
18	23	9.5	6.0	2.0	.10	.05	1020	463	158	65	41	65
19	23	9.5	6.0	2.0	.10	.07	1060	440	142	65	39	62
20	21	9.3	6.0	2.0	.10	.10	990	420	126	65	39	50
21	21	9.0	6.0	1.8	.10	.10	906	410	126	63	39	46
22	21	8.5	5.8	1.5	.10	.10	899	396	124	54	39	41
23	18	8.0	5.5	1.5	.10	.10	899	360	118	52	39	37
24	18	8.0	5.5	1.5	.10	.10	906	340	112	52	39	37
25	17	8.0	5.5	1.8	.10	.10	906	330	104	52	39	34
26	17	7.5	5.5	1.8	.10	.10	892	340	102	52	39	31
27	17	7.0	5.5	1.8	.10	.10	892	390	96	52	44	30
28	16	7.0	5.5	1.8	.10	.10	873	440	96	52	55	30
29	16	7.0	5.5	1.7	---	.10	854	390	89	48	175	30
30	15	7.0	5.5	1.6	---	.10	847	370	79	46	106	31
31	15	---	5.5	1.5	---	.12	---	350	---	46	62	---
TOTAL	903	326.1	186.3	93.3	12.00	1.95	35113.0	16090	5839	2112	1452	1495
MEAN	29.1	10.9	6.01	3.01	.43	.063	1170	519	195	68.1	46.8	49.8
MAX	46	16	7.0	5.5	1.5	.12	3380	828	410	112	175	155
MIN	15	7.0	5.5	1.5	.10	.01	9.0	330	79	46	25	30
AC-FT	1790	647	370	185	24	3.9	69650	31910	11580	4190	2880	2970

CAL YR 1977 TOTAL 9576.90 MEAN 26.2 MAX 234 MIN 2.0 AC-FT 19000
WTR YR 1978 TOTAL 63623.65 MEAN 174 MAX 3380 MIN .01 AC-FT 126200

05101000 TONGUE RIVER AT AKRA, ND

LOCATION.--Lat 48°46'42", long 97°44'43", in SW¼ sec.10, T.161 N., R.55 W., Pembina County, Hydrologic Unit 09020313, on left bank 300 ft (90 m) downstream from Renwick Dam, 0.9 mi (1.4 km) northwest of Akra, and 6 mi (10 km) west of Cavalier. Prior to Dec. 19, 1973, at site 2.7 mi (4.3 km) downstream.

DRAINAGE AREA.--160 mi^2 (414 km^2).

PERIOD OF RECORD.--April to June 1950 (WSP 1137-B), October 1951 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 930.00 ft (283.464 m) National Geodetic Vertical Datum of 1929. Prior to July 10, 1954, nonrecording gage 1.2 mi (1.9 km) downstream at datum 30.00 ft (9.144 m) lower. July 23, 1954 to Dec. 19, 1973, water stage recorder 2.7 mi (4.3 km) downstream at datum 9.10 ft (2.774 m) lower.

REMARKS.--Records fair. Flow regulated by temporary retention in ten retarding basins beginning 300 ft (90 m) above station, four of which have slow release outlet structures to regulate the flow. Retarding basins were completed during the period 1955 to 1961 and have a combined capacity of 19,245 acre-ft (23.7 hm^3).

AVERAGE DISCHARGE.--27 years (1951-78), 21.2 ft^3/s (0.600 m^3/s), 15,360 acre-ft/yr (18.9 hm^3/yr); median of yearly mean discharges, 19 ft^3/s (0.54 m^3/s), 13,800 acre-ft/yr (17 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft^3/s (334 m^3/s) Apr. 18, 1950, gage height, 48.7 ft (14.844 m), from floodmarks, site and datum then in use, from rating curve extended above 1,500 ft^3/s (42.5 m^3/s) on basis of contracted-opening measurement of peak flow; no flow Dec. 1-27, 1952, Aug. 13, 14, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 18, 1950, is the highest known since settlement of the region (about 1860).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 429 ft^3/s (12.1 m^3/s) Apr. 10, gage height, 14.28 ft (4.353 m); minimum daily discharge, 0.05 ft^3/s (0.001 m^3/s) Jun. 22-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	2.0	21	4.1	3.6	12	6.1	71	10	.06	.10	.20
2	4.0	2.0	21	4.0	3.5	12	6.9	62	14	.06	.10	.20
3	3.8	1.6	19	4.0	3.5	12	53	55	12	.06	.10	.22
4	3.5	1.2	19	3.7	3.5	12	88	36	11	.06	2.0	.22
5	3.2	1.1	18	3.5	3.5	12	99	16	10	.06	2.7	.22
6	3.0	1.1	17	3.7	3.5	12	182	20	9.1	.06	2.7	.22
7	3.0	1.2	16	3.7	3.5	12	340	22	7.9	.06	2.7	.22
8	3.0	1.5	15	3.6	3.5	12	381	27	6.9	.06	2.7	.24
9	3.0	1.9	14	3.6	3.5	14	403	41	5.4	.06	2.6	.24
10	3.0	1.6	12	3.6	3.5	19	427	56	4.8	.06	2.5	.24
11	3.0	1.1	11	3.6	8.8	28	422	59	4.0	.08	2.2	.24
12	3.0	1.1	11	3.5	13	33	393	54	3.2	.10	1.1	.24
13	3.0	1.1	9.5	3.5	13	32	359	46	2.6	.10	.18	.24
14	4.0	1.1	8.8	3.5	13	31	327	38	2.0	.10	.18	.24
15	5.0	1.4	8.2	3.5	13	30	291	33	.68	.10	.18	.24
16	6.0	5.2	7.5	3.5	13	30	268	28	.09	.10	.18	.22
17	6.1	10	7.4	3.5	13	29	258	24	.08	.10	.18	.22
18	5.8	14	8.1	3.5	12	16	245	21	.08	.10	.18	.20
19	5.3	16	7.9	3.5	12	8.1	228	20	.07	.10	.18	.20
20	4.8	21	7.4	3.5	12	8.1	191	21	.07	.10	.18	.20
21	4.2	18	7.0	3.5	12	6.0	151	26	.06	.10	.18	.18
22	3.5	13	6.9	3.5	12	4.1	139	26	.05	.10	.18	.18
23	3.1	10	6.3	3.5	12	4.1	132	21	.05	.10	.18	.18
24	2.8	11	6.1	3.5	12	4.2	130	22	.05	.10	.18	.18
25	2.8	14	5.8	3.9	12	4.2	128	20	.05	.10	.18	.18
26	2.6	16	5.3	3.8	12	4.4	125	20	.05	.10	.18	.18
27	2.5	18	4.9	3.7	12	4.5	117	16	.05	.10	.18	.16
28	2.0	19	4.6	3.7	12	4.9	105	17	.05	.10	.20	.16
29	1.9	20	4.5	3.7	---	4.9	93	14	.05	.10	.20	.16
30	1.9	21	4.4	3.7	---	5.0	81	12	.06	.10	.18	.16
31	2.4	---	4.4	3.9	---	5.5	---	10	---	.10	.18	---
TOTAL	109.7	247.2	319.0	113.0	253.9	426.0	6169.0	954	104.49	2.68	24.96	6.18
MEAN	3.54	8.24	10.3	3.65	9.07	13.7	206	30.8	3.48	.086	.81	.21
MAX	6.1	21	21	4.1	13	33	427	71	14	.10	2.7	.24
MIN	1.9	1.1	4.4	3.5	3.5	4.1	6.1	10	.05	.06	.10	.16
AC-FT	218	490	633	224	504	845	12240	1890	207	5.3	50	12

CAL YR 1977 TOTAL 1727.20 MEAN 4.73 MAX 35 MIN 1.0 AC-FT 3430
WTR YR 1978 TOTAL 8730.11 MEAN 23.9 MAX 427 MIN .05 AC-FT 17320

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN
(International gaging station)

LOCATION.--Lat 49°00'30", long 97°12'40", in sec.2, T.1, R.2 E., on right bank 1,500 ft (460 m) downstream from Canadian National Railway bridge in Emerson, 0.8 mi (1.3 km) downstream from international boundary, 3.6 mi (5.8 km) downstream from Pembina River, and at mile 154.3 (248.3 km).

DRAINAGE AREA.--40,200 mi² (104,100 km²), approximately, includes 3,800 mi² (9,840 km²) in closed basins.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to November 1902 (gage heights only), May 1912 to September 1929 (monthly discharge only, published in WSP 1308). October 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft (213.360 m) above mean sea level, datum of 1929, by Geodetic Survey of Canada. See WSP 1728 or 1913 for history of changes prior to Apr. 10, 1953.

REMARKS.--Records good. Discharge partially regulated by reservoirs on tributaries.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--66 years (water years 1913-78) 3,251 ft³/s (92.07 m³/s), 2,355,000 acre-ft/yr (2.90 km³/yr); median of yearly mean discharges, 2,640 ft³/s (74.8 m³/s), 1,910,000 acre-ft/yr (2.4 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,500 ft³/s (2,700 m³/s) May 13, 1950, gage height, 90.89 ft (27.703 m); minimum observed, 0.9 ft³/s (0.025 m³/s) Feb. 6-8, 1937, gage height, 44.00 ft (13.411 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,600 ft³/s (1,430 m³/s) Apr. 18. gage height, 86.89 ft (26.484 m); minimum daily, 700 ft³/s (19.8 m³/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1250	1130	1360	1350	1080	961	10600	29700	5240	3220	2840	1270
2	1470	1110	1430	1330	1040	961	12500	27200	5040	3360	2660	1360
3	1580	1070	1500	1310	1010	964	13900	24500	4800	3370	2490	1480
4	1560	1050	1500	1310	984	964	15200	21700	4610	3250	2350	1470
5	1500	1060	1510	1310	966	968	16800	18800	4490	3100	2280	1340
6	1460	1060	1510	1300	955	970	19000	16100	4460	2960	2240	1190
7	1430	1070	1490	1300	943	977	21600	13800	4400	2850	2190	1070
8	1410	1070	1460	1310	929	981	24900	11900	4270	2850	2150	991
9	1380	1070	1440	1310	924	976	29500	10300	4090	3020	2110	898
10	1350	1080	1390	1300	947	976	34300	9180	3910	3300	2050	791
11	1290	1130	1330	1280	983	977	38600	8880	3740	3490	1980	716
12	1270	1170	1270	1260	1010	975	40900	7930	3640	3570	1900	700
13	1300	1210	1220	1240	1030	1010	42600	7520	3550	3590	1850	791
14	1480	1230	1180	1230	1040	1040	44600	7210	3450	3640	1810	974
15	1680	1170	1150	1210	1040	1060	46100	6930	3330	3790	1730	1140
16	1760	1050	1130	1200	1020	1080	48000	6640	3310	4060	1700	1260
17	1690	950	1130	1190	1010	1100	49800	6330	3330	4360	1680	1230
18	1620	985	1150	1170	1000	1130	50300	6030	3430	4550	1670	1080
19	1580	1120	1160	1160	995	1150	49000	5810	3690	4580	1640	1010
20	1510	1240	1160	1150	989	1180	49100	5620	3930	4460	1560	1020
21	1440	1250	1170	1150	987	1220	49200	5450	4240	4230	1430	1070
22	1390	1130	1180	1150	985	1260	49000	5270	4310	4030	1290	1140
23	1370	1150	1180	1160	972	1360	47900	5240	4090	3950	1190	1270
24	1370	1110	1200	1170	964	1490	46100	6400	3810	3980	1110	1340
25	1370	1060	1220	1180	958	1690	44200	6780	3510	4000	1060	1320
26	1350	1100	1240	1200	962	1990	42300	6640	3240	3890	1030	1250
27	1320	1170	1260	1200	962	2460	40000	6390	3080	3680	1040	1140
28	1280	1220	1280	1180	960	3150	37500	6250	3000	3490	1080	1090
29	1250	1260	1290	1160	---	4360	35100	6090	3020	3290	1120	1060
30	1220	1300	1290	1130	---	6110	32200	5790	3100	3140	1150	1070
31	1180	---	1290	1110	---	8350	---	5460	---	3000	1250	---
TOTAL	44110	33775	40070	38010	27648	53840	1080800	317440	116110	112050	53630	33931
MEAN	1423	1126	1293	1226	987	1737	36030	10240	3870	3615	1730	1118
MAX	1760	1300	1510	1350	1080	8350	50300	29700	5240	4580	2840	1480
MIN	1180	950	1130	1110	924	961	10600	5240	3000	2850	1030	700
AC-FT	87490	66990	79480	75390	54840	106800	2144000	629600	230300	222300	106400	66510

CAL YR 1977 TOTAL 311205 MEAN 853 MAX 4440 MIN 165 AC-FT 617300
WTR YR 1978 TOTAL 1951014 MEAN 5345 MAX 50300 MIN 700 AC-FT 3870000

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued
(National stream-quality accounting network station)
(Pesticide station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to September 1978.
WATER TEMPERATURE: October 1977 to September 1978.

REMARKS.--Specific conductance and temperature monitor operated by Canada.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily mean, 1,200 micromhos Sept. 24; minimum daily mean, 330 micromhos Apr. 10, 16, 17.
WATER TEMPERATURES: Maximum daily mean, 25.0°C July 6, Aug. 5, 6, 7; minimum daily mean, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
JAN											
06...	1225	1380	650	7.7	.0	--	--	--	--	--	320
FEB											
02...	1230	1150	710	7.8	.0	--	8.0	56	290	3800	350
24...	1500	1100	750	7.7	.0	--	10.4	73	113	100	350
MAR											
22...	1000	1500	640	--	.0	--	--	--	--	--	--
APR											
27...	1300	41500	410	8.1	12.5	--	9.5	89	K4	1800	180
27...	1301	41500	410	8.1	12.5	--	--	--	--	--	--
MAY											
25...	1240	6790	560	8.2	22.0	--	6.0	71	--	2800	--
JUN											
29...	1415	3080	675	8.2	25.5	100	6.8	84	K80	K21	300
JUL											
25...	1400	4090	535	8.3	25.0	180	6.5	77	K490	230	230
SEP											
08...	1130	1090	805	8.4	21.5	35	7.2	83	130	K38	290
27...	1010	1210	790	8.2	13.0	24	8.8	--	K30	K20	250

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
JAN											
06...	70	69	35	23	13	.6	4.8	300	0	250	9.6
FEB											
02...	77	78	37	32	16	.7	5.2	350	0	270	8.4
24...	63	79	37	33	17	.8	5.6	350	0	290	11
MAR											
22...	--	--	--	--	--	--	--	--	--	--	--
APR											
27...	54	46	17	14	14	.4	5.5	160	0	130	2.0
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
25...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	67	68	31	33	19	.8	6.7	--	--	230	--
JUL											
25...	67	53	23	23	16	.7	5.8	--	--	160	--
SEP											
08...	100	70	28	59	30	1.5	6.3	--	--	190	--
27...	73	60	25	66	36	1.8	5.9	--	--	180	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
JAN										
06...	84	17	.2	15	418	396	.57	1560	.43	.25
FEB										
02...	82	35	.2	17	465	449	.63	1440	.31	.16
24...	79	29	.2	15	470	450	.64	1400	.43	.29
MAR										
22...	--	--	--	--	--	--	--	--	--	--
APR										
27...	63	12	.2	14	263	251	.36	29500	1.3	.17
27...	--	--	--	--	--	--	--	--	--	--
MAY										
25...	--	--	--	--	--	--	--	--	--	--
JUN										
29...	96	33	.3	8.9	411	413	.56	3420	.30	.00
JUL										
25...	78	21	.2	14	329	314	.45	5650	.46	.02
SEP										
08...	100	88	.2	12	488	474	.66	1440	.02	.03
27...	94	95	.2	8.8	487	463	.66	1590	.08	.03

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ARSENIC TOTAL (UG/L AS AS) (01002)
JAN									
06...	--	--	--	.89	--	--	.13	.10	--
FEB									
02...	.84	1.0	.03	.97	1.3	5.8	.15	.13	1
24...	.67	.96	.00	1.0	1.4	6.2	.12	.14	--
APR									
27...	.93	1.1	.10	1.0	2.4	11	.21	.14	3
JUN									
29...	1.2	1.2	.00	1.6	1.5	6.6	.29	.11	--
JUL									
25...	1.3	1.3	.37	.93	1.8	7.8	.44	.18	7
SEP									
08...	1.1	1.1	.44	.66	1.1	5.0	.12	.06	--
27...	.88	.91	.31	.60	.99	4.4	.20	.11	--

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JAN									
06...	--	--	--	--	--	--	--	--	--
FEB									
02...	0	2	100	0	100	1	0	1	10
24...	--	--	--	--	--	--	--	--	--
APR									
27...	1	2	0	0	0	0	0	0	0
JUN									
29...	--	--	--	--	--	--	--	--	--
JUL									
25...	2	5	200	0	200	4	2	2	20
SEP									
08...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
FEB								
02...	10	0	0	0	0	13	12	1
24...	--	--	--	--	--	--	--	--
APR								
27...	0	0	0	0	0	23	19	4
JUN								
29...	--	--	--	--	--	--	--	--
JUL								
25...	20	0	4	2	2	28	15	13

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)
FEB												
02...	460	--	30	--	--	--	70	40	30	.4	.4	.0
24...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
27...	1300	--	30	10	7	3	60	60	0	.0	.0	.1
JUN												
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
25...	7000	7000	30	--	--	--	420	410	10	1.4	1.4	.0

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
JAN											
06...	--	--	--	--	--	--	--	--	--	11	.9
FEB											
02...	0	0	0	1	1	0	20	10	10	13	.7
24...	--	--	--	--	--	--	--	--	--	18	--
APR											
27...	0	0	1	0	0	0	20	0	20	8.7	2.5
JUN											
29...	--	--	--	--	--	--	--	--	--	10	3.1
JUL											
25...	0	0	0	0	0	0	250	240	10	41	3.1
SEP											
08...	--	--	--	--	--	--	--	--	--	11	1.6
27...	--	--	--	--	--	--	--	--	--	9.7	1.6

DATE	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	ATRAZINE, TOTAL (UG/L) (39630)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
FEB												
02...	ND	--	--	ND	--	ND	ND	--	ND	--	ND	--
APR												
27...	ND	ND	.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
27...	.0	--	.00	.00	--	--	.0	--	.00	--	.00	--
JUL												
25...	ND	--	--	ND	--	ND	ND	--	ND	--	ND	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
FEB												
02...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND
APR												
27...	ND	ND	ND	ND	ND	ND	.00	ND	ND	ND	ND	ND
27...	.00	--	.00	--	.00	--	.00	.00	--	.00	--	.00
JUL												
25...	ND	--	ND	--	ND	--	--	ND	--	ND	--	ND

DATE	HEPTA-CHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)
FEB											
02...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR											
27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27...	--	.00	--	.00	--	.00	--	--	--	.00	--
JUL											
25...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL TRI-THION, TOTAL (UG/L) (39790)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMA-ZINE TOTAL COUL-SON COND. (UG/L) (39025)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
FEB											
02...	ND	--	ND	--	ND	ND	--	ND	--	ND	ND
APR											
27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	.04	.00
27...	.00	--	.00	--	--	0	--	.00	--	.03	.00
JUL											
25...	ND	--	ND	--	ND	ND	--	ND	--	--	--

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JAN				
06...	--	19	71	88
FEB				
02...	ND	14	43	93
24...	--	12	36	84
MAR				
22...	--	22	89	91
APR				
27...	.00	52	5830	91
27...	.00	--	--	--
MAY				
25...	--	911	16700	99
JUN				
29...	--	234	1950	99
JUL				
25...	--	331	3660	99
SEP				
08...	--	80	235	100
27...	--	78	255	99

Whole water ND - Not detected at 0.01 μg/L level.
Bed material ND - Not detected at 0.1 μg/mg level.

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	840	670	660	805	730	585	525	620	650	675	695
2	920	845	765	660	710	725	515	535	630	650	695	705
3	940	840	775	665	700	720	475	535	635	640	715	720
4	970	820	750	665	700	710	450	550	640	620	740	745
5	990	800	790	660	710	700	410	570	630	700	745	735
6	960	805	840	680	730	695	390	600	635	725	750	820
7	960	810	845	680	750	685	365	640	640	740	720	850
8	950	850	840	690	740	675	350	690	630	740	655	850
9	920	855	815	700	740	665	340	760	610	740	645	840
10	870	860	800	730	745	660	330	800	610	725	645	---
11	850	900	780	755	740	655	345	790	620	700	645	840
12	840	870	765	770	740	655	350	740	615	720	645	810
13	840	900	760	780	750	650	355	750	620	730	635	760
14	840	910	725	780	750	650	345	750	620	715	645	730
15	860	925	705	770	745	645	340	730	625	705	650	730
16	860	930	690	765	745	640	330	630	625	680	655	720
17	830	925	685	760	740	640	330	640	625	650	660	700
18	830	885	675	750	---	640	335	660	625	---	660	770
19	830	890	685	740	---	635	345	675	635	700	630	760
20	860	945	685	735	---	645	345	675	630	590	620	830
21	870	990	685	735	760	650	360	680	620	550	610	875
22	870	1040	685	735	750	645	375	670	550	570	630	920
23	870	1070	685	730	745	630	400	680	550	585	625	1060
24	870	1080	685	730	750	630	415	610	600	575	625	1200
25	890	1010	685	720	755	615	430	575	570	580	640	935
26	910	900	685	725	755	635	450	580	510	580	650	690
27	880	850	685	730	745	695	460	560	530	575	620	655
28	835	810	685	755	740	655	480	610	570	580	625	660
29	790	755	680	780	---	620	495	630	600	630	650	780
30	775	705	670	800	---	620	505	610	640	650	660	880
31	810	---	660	810	---	610	---	610	---	655	690	---
MEAN	875	887	727	730	742	659	400	647	609	655	660	802

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	9.0	.5	.5	.5	1.0	1.0	12.0	19.0	24.0	23.0	21.0
2	11.5	8.0	.5	.5	.5	1.0	1.0	12.0	18.0	24.0	23.0	22.0
3	11.5	7.0	.0	.5	.5	1.0	1.0	12.0	18.0	24.5	24.0	21.5
4	11.5	6.5	.0	.5	.5	1.0	1.0	12.5	18.0	24.0	24.0	23.0
5	11.0	6.0	.5	.5	.5	1.0	1.0	13.0	18.5	24.0	25.0	23.0
6	10.0	6.5	1.0	.5	.5	1.0	1.0	14.0	18.0	25.0	25.0	23.5
7	9.5	7.0	.5	.5	.0	1.0	1.0	14.0	19.0	24.5	25.0	22.5
8	9.0	7.0	1.0	.5	.0	1.0	1.0	13.5	19.5	24.0	23.0	22.0
9	9.0	5.5	.5	.5	.0	1.0	1.0	12.5	17.5	22.0	22.5	22.0
10	8.5	4.0	.5	.5	.0	1.0	1.0	13.0	17.5	21.5	23.0	---
11	8.0	3.0	.5	.5	.0	1.0	1.5	13.0	18.0	22.0	23.5	21.5
12	7.5	2.5	.5	.5	.0	1.0	2.0	13.5	17.5	22.5	24.5	19.0
13	8.0	2.0	.5	.5	.5	1.0	2.5	13.5	18.5	22.5	24.0	16.0
14	9.0	1.5	.5	.5	.5	1.0	3.0	13.5	19.5	23.0	24.0	16.0
15	8.5	1.0	.5	.5	.5	1.0	3.5	14.0	20.0	23.0	23.5	16.0
16	8.0	1.0	.5	.5	.5	1.0	4.5	15.0	21.0	23.5	23.0	16.5
17	8.5	1.0	.5	.5	.5	1.0	5.5	16.5	21.0	24.0	23.0	16.0
18	8.0	.5	.5	.5	---	1.0	6.0	17.0	21.0	---	22.5	16.0
19	8.5	.5	.5	.5	---	1.0	6.0	16.5	21.0	24.5	21.0	15.5
20	8.5	.5	.5	.5	---	1.0	5.0	16.0	20.5	24.5	21.0	15.0
21	8.5	.5	.5	.5	.5	1.0	5.0	16.0	20.5	24.0	20.5	15.0
22	7.5	.5	.5	.5	.5	1.0	6.0	17.0	21.0	23.5	19.5	15.0
23	7.0	.5	.5	.5	1.0	1.0	6.5	17.5	21.5	24.0	19.0	15.0
24	7.0	.5	.5	.5	1.0	1.0	7.0	17.5	21.5	24.0	20.0	15.0
25	7.0	.5	.5	.5	1.0	1.0	8.0	19.0	21.5	24.5	21.5	15.0
26	7.5	.5	.5	.5	1.0	1.0	9.0	19.5	21.0	24.5	22.5	15.0
27	7.5	.5	.5	.5	1.0	1.0	10.0	20.0	21.0	24.0	22.5	14.5
28	7.0	.5	.5	.5	1.0	1.0	11.0	20.5	22.0	24.5	22.0	14.0
29	7.5	.5	.5	.5	---	1.0	11.5	20.5	23.0	23.0	21.5	13.5
30	9.0	.5	.5	.5	---	1.0	12.0	20.5	23.5	22.5	20.5	13.5
31	9.5	---	.5	.5	---	1.0	---	19.5	---	22.5	20.5	---
MEAN	8.5	3.0	.5	.5	.5	1.0	4.5	15.5	20.0	23.5	22.5	17.5

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAR 22,78	APR 27,78	MAY 25,78	JUN 29,78
TIME	1000	1300	1240	1415
TOTAL CELLS/ML	450	2300	1900	25000
DIVERSITY: DIVISION	1.1	1.7	1.4	0.8
.CLASS	1.1	1.7	1.4	0.8
..ORDER	1.3	2.1	1.9	1.1
...FAMILY	2.2	2.6	2.4	1.3
....GENUS	2.3	2.6	2.8	2.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....CHARACIUM	--	-	--	-	--	-	--	-
....SCHROEDERIA	43	10	14	1	--	-	*	0
...HYDRODICTYACEAE								
....PEDIASTRUM	230#	52	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	110	5	--	-	*	0
...OOCYSTACEAE								
....ANKISTRODESMUS	14	3	72	3	72	4	*	0
....DICTYOSPHAERIUM	--	-	--	-	--	-	250	1
....KIRCHNERIELLA	--	-	--	-	--	-	140	1
....OOCYSTIS	--	-	--	-	--	-	190	1
....SELENASTRUM	--	-	--	-	14	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	110	6	*	0
....CRUCIGENIA	--	-	--	-	--	-	740	3
....SCENEDESMUS	29	6	190	8	690#	36	900	4
....TETRASTRUM	--	-	--	-	--	-	880	3
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	14	1	--	-	--	-
....CHLAMYDOMONAS	--	-	140	6	29	2	230	1
...PHACOTACEAE								
....PTEROMONAS	--	-	*	0	--	-	--	-
...VOLVOCACEAE								
....EUDORINA	--	-	320	14	--	-	370	1
..CHLOROCOCCALES								
...OOCYSTACEAE								
....GLOEOACTINIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	58	13	630#	28	43	2	--	-
....MELOSIRA	14	3	--	-	200	11	210	1
....STEPHANODISCUS	--	-	--	-	--	-	*	0
..PENNALES								
...DIATOMACEAE								
....DIATOMA	--	-	--	-	86	5	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	29	2	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	29	2	--	-
...NITZSCHIACEAE								
....NITZSCHIA	29	6	*	0	420#	22	250	1
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	740	3
....ANACYSTIS	--	-	--	-	--	-	17000#	66
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	720#	32	170	9	990	4
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	--	-	--	-	--	-	2400	10

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAR 22,78		APR 27,78		MAY 25,78		JUN 29,78	
TIME	1000		1500		1240		1415	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	14	1	--	-	--	-
....TRACHELOMONAS	29	6	14	1	14	1	*	0
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	--	-	--	-
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-
...PERIDINIACEAE								
....PERIDINIUM	--	-	14	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUL 25,78	SEP 6,78	SEP 27,78
TIME	1400	1130	1010
TOTAL CELLS/ML	8000	18000	6300
DIVERSITY: DIVISION	1.4	1.2	1.4
.CLASS	1.4	1.2	1.4
..ORDER	1.8	1.8	1.9
...FAMILY	2.8	2.3	2.2
....GENUS	3.3	2.6	2.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....CHARACIUM	*	0	--	-	--	-
....SCHROEDERIA	--	-	*	0	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	360	4	1100	6	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	110	1	*	0	1400#	22
....DICTYOSPHAERIUM	--	-	500	3	500	8
....KIRCHNERIELLA	44	1	--	-	--	-
....OOCYSTIS	760	9	--	-	--	-
....SELENASTRUM	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	*	0
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	400	2	--	-
....CRUCIGENIA	--	-	1100	6	380	6
....SCENEDESMUS	1100	14	1100	5	95	2
....TETRASTRUM	360	4	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	--	-
....CHLAMYDOMONAS	44	1	*	0	--	-
...PHACOTACEAE						
....PTEROMONAS	--	-	--	-	--	-
...VOLVOCACEAE						
....EUDORINA	--	-	--	-	--	-
..CHLOROCOCCALES						
...OOCYSTACEAE						
....GLOEOACTINIUM	89	1	--	-	550	9
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	240	3	400	2	140	2
....MELOSIRA	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
...NAVICULACEAE						
....GYROSIGMA	--	-	*	0	95	2
....NAVICULA	44	1	480	3	--	-
...NITZSCHIACEAE						
....NITZSCHIA	200	3	230	1	47	1
...SURIRELLACEAE						
....SURIRELLA	--	-	350	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOMONODACEAE						
....CRYPTOMONAS	44	1	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	--	-
....ANACYSTIS	670	8	3100#	17	1000#	17
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	1600#	20	380	2	--	-
....ANABAENOPSIS	420	5	--	-	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	1800#	22	8800#	49	1800#	28
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....GOMPHOSPHAERIA	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05102500 RED RIVER OF THE NORTH AT EMERSON, MAN.--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	JUL 25,78		SEP 8,78		SEP 27,78	
TIME	1400		1130		1010	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	95	2
....TRACHELOMONAS	44	1	--	-	95	2
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..GYMNODINIALES						
...GYMNODINIACEAE						
....GYMNODINIUM	44	1	--	-	--	-
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	*	0	--	-	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass (µg/m²)		Chlorophyll a (µg/m²)	Chlorophyll b (µg/m²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Feb. 24	22	79	0.000	0.000	0.000	--	Polyethylene strip
Sept.27	15	866	709	.350	.000	448	Polyethylene strip

05113360 LONG CREEK AT WESTERN CROSSING OF INTERNATIONAL BOUNDARY, SASK.
(International gaging station)

LOCATION.--Lat 49°00'01", long 103°21'08", in SE¼ sec.1, T.1, R.11 W., 2d meridian, Hydrologic Unit 09010001, and on right bank 10 mi (16 km) south of Outram, Saskatchewan.

DRAINAGE AREA.--1,320 mi² (3,420 km²).

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder and artificial control. Datum of gage is 1,894.00 ft (577.291 m) National Geodetic Vertical Datum of 1929, international boundary survey.

REMARKS.--Records good. Discharge affected by storage in upstream reservoirs.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--19 years, 40.9 ft³/s (1.158 m³/s) 29,630 acre-ft/yr (36.5 hm³/yr); median of yearly mean discharges, 31 ft³/s (0.88 m³/s), 22,500 acre-ft/yr (28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s (133 m³/s) Apr. 1, 1976, gage height, 12.05 ft (3.673 m); maximum gage height, 12.70 ft (3.871 m) Mar. 31, 1976 backwater from ice; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,310 ft³/s (65.4 m³/s) July 14, gage height, 8.91 ft (2.717 m); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	973	23	17	55	59	13
2	.00	.00	.00	.00	.00	.00	807	22	14	49	54	9.3
3	.00	.00	.00	.00	.00	.00	625	20	13	38	50	8.0
4	.00	.00	.00	.00	.00	.00	391	20	14	50	46	6.6
5	.00	.00	.00	.00	.00	.00	309	19	15	30	42	5.2
6	.00	.00	.00	.00	.00	.00	317	20	13	26	39	4.0
7	.00	.00	.00	.00	.00	.00	236	22	12	40	36	3.1
8	.00	.00	.00	.00	.00	.00	188	25	10	60	32	2.8
9	.00	.00	.00	.00	.00	.00	158	23	8.2	76	30	2.4
10	.00	.00	.00	.00	.00	.00	125	22	7.1	127	27	2.0
11	.00	.00	.00	.00	.00	.00	105	23	7.0	241	24	1.9
12	.00	.00	.00	.00	.00	.00	96	22	6.0	403	22	5.1
13	.00	.00	.00	.00	.00	.00	81	22	4.6	1460	20	21
14	.00	.00	.00	.00	.00	.00	71	20	3.0	2250	20	34
15	.00	.00	.00	.00	.00	.00	66	19	5.3	1860	19	43
16	.00	.00	.00	.00	.00	.00	61	19	8.5	1410	17	33
17	.00	.00	.00	.00	.00	.00	56	18	8.0	1040	16	26
18	.00	.00	.00	.00	.00	.00	53	16	7.6	780	15	23
19	.00	.00	.00	.00	.00	.00	51	16	7.8	586	13	91
20	.00	.00	.00	.00	.00	.00	49	15	7.5	450	12	302
21	.00	.00	.00	.00	.00	.00	51	12	6.2	357	11	225
22	.00	.00	.00	.00	.00	.00	50	12	4.6	291	9.1	158
23	.00	.00	.00	.00	.00	156	46	11	2.9	233	7.2	99
24	.00	.00	.00	.00	.00	211	42	10	2.9	188	6.6	75
25	.00	.00	.00	.00	.00	544	37	9.4	1.8	158	10	86
26	.00	.00	.00	.00	.00	636	34	9.3	3.1	133	43	126
27	.00	.00	.00	.00	.00	465	31	7.9	6.6	112	32	129
28	.00	.00	.00	.00	.00	486	28	6.6	6.2	97	36	117
29	.00	.00	.00	.00	---	1220	27	5.5	4.7	83	30	103
30	.00	.00	.00	.00	---	1070	25	6.1	41	73	24	67
31	.00	---	.00	.00	---	1070	---	12	---	65	17	---
TOTAL	.00	.00	.00	.00	.00	5858.00	5189	507.8	268.6	12861	818.9	1841.4
MEAN	.000	.000	.000	.000	.000	189	173	16.4	8.95	415	26.4	61.4
MAX	.00	.00	.00	.00	.00	1220	973	25	41	2250	59	302
MIN	.00	.00	.00	.00	.00	.00	25	5.5	1.8	26	6.6	1.9
AC-FT	.00	.00	.00	.00	.00	11620	10290	1010	533	25510	1620	3650

CAL YR 1977 TOTAL 624.61 MEAN 1.71 MAX 69 MIN .00 AC-FT 1240
WTR YR 1978 TOTAL 27344.70 MEAN 74.9 MAX 2250 MIN .00 AC-FT 54240

05113600 LONG CREEK NEAR NOONAN, ND
(International gaging station)

LOCATION.--Lat 48°58'52", long 103°04'34", near north line of NE¼ sec.1, T.163 N., R.96 W., Divide County, Hydrologic Unit 09010001, on right bank 150 ft (46 m) upstream from county highway bridge, 1.5 mi (2.4 km) upstream from international boundary, and 7 mi (11 km) northwest of Noonan.

DRAINAGE AREA.--1,790 mi^2 (4,640 km^2), approximately, of which about 1,160 mi^2 (3,000 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,840 ft (561 m), from topographic map. Prior to Aug. 18, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--19 years, 52.4 ft^3/s (1.485 m^3/s), 37,960 acre-ft/yr (46.8 hm^3/yr); median of yearly mean discharges, 40 ft^3/s (1.13 m^3/s), 29,000 acre-ft/yr (36 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,310 ft^3/s (179 m^3/s) Mar. 31, 1976, gage height, 17.61 ft (5.367 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum(*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 29	1900	1,490	42.2	10.45	3.185
July 5	0030	238	6.74	6.00	1.829
July 15	0015	*2,180	61.7	*12.13	3.697
Sept.21	0215	373	10.6	6.75	2.057

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.04	.36	.00	.00	.00	1170	34	24	100	85	25
2	.01	.09	.34	.00	.00	.00	1020	30	61	116	78	20
3	.01	.08	.32	.00	.00	.00	830	27	65	102	71	16
4	.01	.05	.30	.00	.00	.00	515	30	56	136	65	13
5	.01	.09	.28	.00	.00	.00	370	27	49	200	63	10
6	.01	.27	.26	.00	.00	.00	348	27	43	161	58	9.7
7	.01	.22	.23	.00	.00	.00	315	27	37	155	52	9.0
8	.01	.18	.20	.00	.00	.00	258	32	33	139	47	8.8
9	.02	.13	.16	.00	.00	.00	226	33	30	163	44	7.7
10	.02	.13	.12	.00	.00	.00	188	32	26	160	41	7.3
11	.02	.13	.10	.00	.00	.00	156	33	23	191	36	7.3
12	.02	.13	.08	.00	.00	.00	143	33	22	297	33	10
13	.02	.15	.06	.00	.00	.00	128	33	20	657	29	11
14	.02	.17	.05	.00	.00	.00	113	30	18	1850	28	14
15	.02	.18	.04	.00	.00	.00	102	27	19	2090	28	42
16	.02	.18	.03	.00	.00	.00	95	26	18	1700	27	54
17	.02	.18	.02	.00	.00	.00	90	25	20	1290	27	38
18	.02	.18	.02	.00	.00	.50	85	24	22	969	24	30
19	.02	.18	.01	.00	.00	1.0	79	26	23	726	22	48
20	.02	.47	.01	.00	.00	5.0	74	24	23	554	21	202
21	.02	.43	.00	.00	.00	20	72	20	21	432	20	336
22	.03	.26	.00	.00	.00	210	74	19	19	347	19	262
23	.03	.24	.00	.00	.00	450	72	19	17	289	18	191
24	.03	.23	.00	.00	.00	430	66	18	17	241	16	138
25	.03	.23	.00	.00	.00	420	58	17	16	201	17	111
26	.04	.26	.00	.00	.00	830	52	17	18	172	24	130
27	.04	.33	.00	.00	.00	840	47	15	28	147	54	151
28	.04	.37	.00	.00	.00	640	42	14	24	128	52	151
29	.04	.37	.00	.00	---	980	39	12	24	113	45	139
30	.04	.37	.00	.00	---	1380	36	14	30	106	37	123
31	.04	---	.00	.00	---	1210	---	19	---	95	31	---
TOTAL	.70	6.32	2.99	.00	.00	7416.50	6883	764	846	14027	1212	2314.8
MEAN	.023	.21	.096	.000	.000	239	229	24.6	28.2	452	39.1	77.2
MAX	.04	.47	.36	.00	.00	1380	1170	34	65	2090	85	336
MIN	.01	.04	.00	.00	.00	.00	36	12	16	95	16	7.3
AC-FT	1.4	13	5.9	.00	.00	14710	13650	1520	1680	27820	2400	4590

CAL YR 1977 TOTAL 800.27 MEAN 2.19 MAX 60 MIN .00 AC-FT 1590
WTR YR 1978 TOTAL 33473.31 MEAN 91.7 MAX 2090 MIN .00 AC-FT 66390

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND

LOCATION.--Lat 48°58'04", long 102°51'04", in SW¼SW¼SW¼ sec.2, T.163 N., R.94 W., Burke County, Hydrologic Unit 0901001, on right bank 1,000 ft (305 m) downstream from bridge on county road, 5.4 mi (8.7 km) northwest of Columbus, 2.5 mi (4.0 km) upstream from international boundary, and 5 mi (8.0 km) upstream from the confluence with East Branch Short Creek.

DRAINAGE AREA.--167 mi² (432 km²), of which 87 mi² (225 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,880 ft (573 m), from topographic map.

REMARKS.--Records good except those for March 18-27, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1545	ice jam		*8.03	2.448	July 4	0600	114	3.23	6.28	1.914
Mar. 24	--	*400	11.3	--	--						

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	37	.91	34	58	.18	.00
2	.00	.00	.00	.00	.00	.00	30	.73	66	50	.15	.00
3	.00	.00	.00	.00	.00	.00	26	.61	74	38	.10	.00
4	.00	.00	.00	.00	.00	.00	24	.63	69	64	.08	.00
5	.00	.00	.00	.00	.00	.00	20	.58	52	45	.06	.00
6	.00	.00	.00	.00	.00	.00	16	.71	34	46	.04	.00
7	.00	.00	.00	.00	.00	.00	13	.83	24	52	.00	.00
8	.00	.00	.00	.00	.00	.00	11	1.7	16	49	.00	.00
9	.00	.00	.00	.00	.00	.00	9.1	6.1	12	44	.00	.00
10	.00	.00	.00	.00	.00	.00	7.3	7.0	9.9	35	.00	.00
11	.00	.00	.00	.00	.00	.00	6.1	9.1	7.4	26	.00	.00
12	.00	.00	.00	.00	.00	.00	5.5	11	6.4	22	.00	.00
13	.00	.00	.00	.00	.00	.00	4.8	17	5.0	18	.00	.00
14	.00	.00	.00	.00	.00	.00	4.1	27	4.7	16	.00	.00
15	.00	.00	.00	.00	.00	.00	3.4	22	5.6	14	.00	.00
16	.00	.00	.00	.00	.00	.00	3.1	17	5.1	13	.00	.00
17	.00	.00	.00	.00	.00	.00	3.1	13	4.7	11	.00	.00
18	.00	.00	.00	.00	.00	.00	3.1	8.7	4.6	8.3	.00	.00
19	.00	.00	.00	.00	.00	.00	2.7	10	5.4	6.6	.00	.00
20	.00	.00	.00	.00	.00	.00	2.5	11	5.8	5.4	.00	2.3
21	.00	.00	.00	.00	.00	.10	2.4	14	6.0	4.2	.00	7.4
22	.00	.00	.00	.00	.00	100	2.1	14	6.8	3.4	.00	16
23	.00	.00	.00	.00	.00	250	1.9	12	6.6	2.9	.00	16
24	.00	.00	.00	.00	.00	350	1.9	9.9	6.0	2.0	.00	12
25	.00	.00	.00	.00	.00	150	1.8	8.0	5.1	1.4	.00	8.4
26	.00	.00	.00	.00	.00	100	1.5	6.7	15	1.0	.00	5.3
27	.00	.00	.00	.00	.00	60	1.3	5.3	37	.77	.00	3.7
28	.00	.00	.00	.00	.00	63	.96	4.3	82	.76	.00	2.9
29	.00	.00	.00	.00	---	69	.82	3.5	50	.44	.00	2.7
30	.00	.00	.00	.00	---	58	.93	4.1	48	.36	.00	2.3
31	.00	---	.00	.00	---	44	---	11	---	.27	.00	---
TOTAL	.00	.00	.00	.00	.00	1244.10	247.41	258.40	708.1	638.80	.61	79.00
MEAN	.000	.000	.000	.000	.000	40.1	8.25	8.34	23.6	20.6	.020	2.63
MAX	.00	.00	.00	.00	.00	350	37	27	82	64	.18	16
MIN	.00	.00	.00	.00	.00	.00	.82	.58	4.6	.27	.00	.00
AC-FT	.00	.00	.00	.00	.00	2470	491	513	1400	1270	1.2	157

WTR YR 1978 TOTAL 3176.42 MEAN 8.70 MAX 350 MIN .00 AC-FT 6300

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
MAR											
27...	1430	61	750	--	9.0	6.5	8.3	72	<2	1600	110
APR											
12...	1200	5.6	1560	8.5	1.0	4.5	12.1	99	<1	K500	260
MAY											
02...	1550	.76	2200	8.6	22.0	16.0	9.2	111	21	--	320
JUN											
07...	1145	24	1600	8.1	10.0	8.0	6.8	76	--	--	200
27...	1035	22	--	--	23.5	22.5	--	--	--	--	--
JUL											
11...	1100	27	1250	8.1	26.5	21.0	3.9	46	190	490	140
AUG											
02...	0950	.15	1680	8.7	12.0	16.0	6.8	74	200	1600	190
SEP											
21...	0930	7.1	2220	8.8	13.0	10.0	8.3	79	590	2500	270

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
MAR											
27...	--	23	13	130	70	5.4	8.9	--	--	--	--
APR											
12...	0	50	32	270	68	7.3	11	310	13	276	1.6
MAY											
02...	0	60	42	420	73	10	13	420	17	373	1.8
JUN											
07...	0	40	24	310	76	9.6	11	380	0	310	4.8
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	0	26	18	230	77	8.5	9.0	400	0	330	5.1
AUG											
02...	0	31	28	340	78	11	11	570	22	504	1.9
SEP											
21...	0	48	37	420	76	11	12	410	25	378	1.1

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR											
27...	220	7.6	.1	10	517	--	.70	85.1	.12	.08	1.0
APR											
12...	490	14	.2	19	1070	1050	1.46	16.2	.04	.00	1.3
MAY											
02...	800	19	.3	15	1640	1590	2.23	3.37	.01	.45	1.1
JUN											
07...	500	9.9	.2	17	1120	1100	1.52	72.6	.00	.05	1.5
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	290	12	.2	18	876	801	1.19	63.9	.00	.03	1.9
AUG											
02...	390	16	.3	1.7	1180	1120	1.60	.48	.00	.00	2.6
SEP											
21...	770	18	.2	5.9	1600	1540	2.18	30.7	.00	.01	4.0

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
MAR 27...	1.1	1.2	5.4	.28	.21	80	3	4	--	100	0
APR 12...	1.3	1.3	5.9	.12	.09	0	4	4	--	100	100
MAY 02...	1.5	1.5	6.7	.04	.06	--	--	--	--	--	--
JUN 07...	1.5	1.5	6.6	.21	.17	0	4	4	7	200	--
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	1.9	1.9	8.4	.68	.67	--	--	--	--	--	--
AUG 02...	2.6	2.6	12	.68	.61	20	--	7	--	--	300
SEP 21...	4.0	4.0	18	.29	.02	--	--	--	--	--	--

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
MAR 27...	--	0	0	--	130	1	1	--	10	0
APR 12...	--	0	0	--	160	2	1	--	0	0
MAY 02...	--	--	--	--	220	--	--	--	--	--
JUN 07...	50	5	0	0	200	0	0	0	5	0
27...	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	220	--	--	--	--	--
AUG 02...	--	--	0	--	220	--	0	--	--	0
SEP 21...	--	--	--	--	130	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
MAR 27...	--	0	1	--	6	4	--	160	8	4
APR 12...	--	0	0	--	3	2	--	90	--	--
MAY 02...	--	--	--	--	--	--	--	80	--	--
JUN 07...	4	0	0	5	5	4	60	190	5	0
JUL 11...	--	--	--	--	--	--	--	250	--	--
AUG 02...	--	--	0	--	--	7	--	170	--	0
SEP 21...	--	--	--	--	--	--	--	110	--	--

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)
MAR										
27...	--	20	30	30	30	--	.0	.0	--	4
APR										
12...	--	50	60	30	0	--	.0	.0	--	4
JUN										
07...	8	40	50	40	30	44	.0	.0	.02	4
JUL										
11...	--	--	--	--	--	--	--	--	--	--
AUG										
02...	--	--	60	--	10	--	--	.0	--	--

DATE	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)
MAR									
27...	--	2	4	2	--	4	2	--	1.0
APR									
12...	--	1	10	5	--	1	0	--	.0
JUN									
07...	7	2	13	8	12	0	0	0	2.0
AUG									
02...	--	0	--	3	--	--	0	--	1.0

DATE	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
27...	10	10	--	12	.9	14	2.2	--	--
APR									
12...	10	10	--	14	<.4	16	.8	--	--
JUN									
07...	10	20	23	--	--	--	--	--	--
AUG									
02...	--	10	--	--	--	--	--	--	--
SEP									
21...	--	--	--	<17	2.2	21	4.6	19	4.6

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR				
27...	14	1.7	23	3.8
APR				
12...	20	.7	5	.00
MAY				
02...	26	--	8	.02
JUN				
07...	32	.2	4	.26
27...	--	--	52	3.1
JUL				
11...	23	--	6	.44
AUG				
02...	31	1.2	11	.00
SEP				
21...	4.6	.0	43	.02

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAR 27,78	APR 12,78	MAY 2,78	JUN 7,78
TIME	1430	1200	1550	1145
TOTAL CELLS/ML	4900	1300	8300	480
DIVERSITY: DIVISION	1.0	1.3	1.3	1.0
.CLASS	1.0	1.3	1.3	1.0
..ORDER	1.1	1.5	1.6	1.0
...FAMILY	2.4	0.0	1.9	2.4
....GENUS	2.7	0.0	2.0	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....CHARACIUM	--	-	20	2	--	-	--	-
....SCHROEDERIA	--	-	99	8	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	20	2	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	430	9	60	5	1600#	20	15	3
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	41	1	60	5	1600#	20	--	-
....OOCYSTIS	68	1	--	-	580	7	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	510	10	560#	44	530	6	60	13
..VOLVOCALES								
...CHLAMYDOMONADACEAE	--	-	20	2	--	-	--	-
....CHLAMYDOMONAS	54	1	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	15	3
...ZYGNEMATACEAE								
....SPIROGYRA	--	-	--	-	--	-	250#	53
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	140	11	370	4	45	9
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	20	2	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	15	3
...NAVICULACEAE								
....DIPLONEIS	--	-	--	-	--	-	--	-
....NAVICULA	95	2	20	2	--	-	15	3
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	160	2	30	6
...SURIRELLACEAE								
....SURIRELLA	--	-	40	3	--	-	15	3
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOMONODACEAE								
....CRYPTOMONAS	81	2	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	MAR 27,78 1430		APR 12,78 1200		MAY 2,78 1530		JUN 7,78 1145	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	420	5	--	-
....ANACYSTIS	--	-	--	-	2100#	26	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	1700#	34	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	420	8	--	-	--	-	--	-
....OSCILLATORIA	950#	19	--	-	790	10	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	620	13	--	-	--	-	--	-
..HORMOGONALES	--	-	200#	16	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	15	3
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUL 11,78	AUG 2,78	SEP 21,78
TIME	1100	0950	0930
TOTAL CELLS/ML	1000	18000	91000
DIVERSITY: DIVISION	1.0	1.9	0.9
.CLASS	1.0	1.9	0.9
..ORDER	1.1	2.0	1.0
...FAMILY	1.5	2.9	1.7
....GENUS	1.6	3.5	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....CHARACIUM	--	-	--	-	--	-
....SCHROEDERIA	--	-	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	860	5	--	-
...MICRACTINIACEAE						
....GOLENKINIA	--	-	110	1	--	-
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	22	2	1100	6	*	0
....DICTYOSPHAERIUM	--	-	860	5	--	-
....FRANCEIA	--	-	210	1	--	-
....KIRCHNERIELLA	--	-	540	3	--	-
....OOCYSTIS	--	-	320	2	--	-
....SELENASTRUM	--	-	--	-	600	1
....TETRAEDRON	--	-	110	1	--	-
....TREUBARIA	--	-	210	1	*	0
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	4500#	25	2400	3
..VOLVOCALES						
...CHLAMYDOMONADACEAE	--	-	--	-	--	-
....CHLAMYDOMONAS	22	2	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....CLOSTERIUM	--	-	--	-	--	-
...ZYGNEMATACEAE						
....SPIROGYRA	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	960	5	14000#	16
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	88	9	110	1	--	-
...CYMBELLACEAE						
....AMPHORA	22	2	--	-	*	0
...FRAGILARIACEAE						
....FRAGILARIA	--	-	640	4	--	-
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....DIPLONEIS	66	7	--	-	--	-
....NAVICULA	44	4	750	4	*	0
...NITZSCHIACEAE						
....NITZSCHIA	22	2	320	2	*	0
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

05113700 WEST BRANCH SHORT CREEK NEAR COLUMBUS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	JUL 11,78		AUG 2,78		SEP 21,78	
TIME	1100		0950		0930	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROCCOCCALES						
...CHROCCOCCAEAE						
....AGMENELLUM	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
....ANABAENOPSIS	--	-	3400#	19	52000#	57
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	730#	72	--	-	20000#	22
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
..HORMOGONALES	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	2200	12	--	-
....PHACUS	--	-	110	1	--	-
....TRACHELOMONAS	--	-	1100	6	*	0
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	110	1	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUORUM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 02...	20	.000	.000	.315	.157
AUG 02...	22	3.88	2.34	2.91	.630

05113750 EAST BRANCH SHORT CREEK RESERVOIR NEAR COLUMBUS, ND

LOCATION.--Lat 48°59'26", long 102°47'07", in SW¼NW¼ sec.32, T.164 N., R.93 W., Burke County, Hydrologic Unit 09010001, on left bank of reservoir on East Branch Short Creek, 0.5 mi (0.8 km) south of international boundary, and 6.0 mi (9.7 km) north of Columbus.

DRAINAGE AREA.--280 mi^2 (725 km^2), of which 175 mi^2 (453 km^2) is noncontributing.

PERIOD OF RECORD.--April 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth-fill dam; storage began April 1963. Outlet of lake is a fixed-crest concrete dam; average crest elevation, 1,886.90 ft (575.127 m) above mean sea level. Reservoir capacity at crest elevation, 1,200 acre-ft (1.48 hm^3). The reservoir is operated for water supply and recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,850 acre-ft (2.28 hm^3) Mar. 28, 1976, gage height, 32.13 ft (9.793 m); minimum, 890 acre-ft (1.10 hm^3) Dec. 10, 1977, gage height, 23.92 ft (7.291 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,440 acre-ft (1.78 hm^3) Mar. 27, gage height, 29.03 ft (8.848 m); minimum, 890 acre-ft (1.10 hm^3) Dec. 10, gage height, 23.92 ft (7.291 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	24.28	930	--
Oct. 31	24.10	910	-20
Nov. 30	24.00	900	-10
Dec. 31	24.01	900	0
CAL YR 1977	--	--	-190
Jan. 31	24.00	900	0
Feb. 28	24.06	910	+10
Mar. 31	28.40	1,370	+460
Apr. 30	27.54	1,260	-110
May 31	27.67	1,280	+20
June 30	28.20	1,340	+60
July 31	27.63	1,280	-60
Aug. 31	27.25	1,230	-50
Sept. 30	*27.20	1,220	-10
WTR YR 1978	--	--	+290

* - Estimated

05113800 SHORT CREEK BELOW INTERNATIONAL BOUNDARY NEAR ROCHE PERCEE, SASK.
(International gaging station)

LOCATION.--Lat 49°01'42", long 102°51'00", in SW¼ sec.14, T.1, R.7 W., 2d meridian, Hydrologic Unit 09010001, 4 mi (6 km) southwest of Roche Percee, Saskatchewan, and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--480 mi^2 (1,240 km^2).

PERIOD OF RECORD.--March 1960 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are poor.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--18 years, 13.7 ft^3/s (0.388 m^3/s) 9,930 acre-ft/yr (12.2 hm^3/yr); median of yearly mean discharges, 4.8 ft^3/s (0.14 m^3/s), 3,500 acre-ft/yr (4.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,700 ft^3/s (48.1 m^3/s) Apr. 7, 1969, gage height, 14.33 ft (4.368 m); maximum gage height, 14.39 ft (4.386 m) Mar. 28, 1960; no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 280 ft^3/s (7.93 m^3/s) Mar. 23, gage height, 8.15 ft (2.483 m), backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	62	2.0	26	70	.82	.11
2	.00	.00	.00	.00	.00	.00	52	2.3	71	66	.56	.13
3	.00	.00	.00	.00	.00	.00	45	2.3	77	57	.48	.12
4	.00	.00	.00	.00	.00	.00	40	2.8	78	133	.49	.08
5	.00	.00	.00	.00	.00	.00	35	2.9	59	92	.27	.07
6	.00	.00	.00	.00	.00	.00	30	4.2	41	78	.17	.06
7	.00	.00	.00	.00	.00	.00	22	4.3	32	78	.22	.06
8	.00	.00	.00	.00	.00	.04	20	5.7	25	73	.13	.06
9	.00	.00	.00	.00	.00	.04	16	7.9	20	62	.09	.07
10	.00	.00	.00	.00	.00	.07	14	16	15	52	.05	.08
11	.00	.00	.00	.00	.00	.07	12	18	12	42	.04	.10
12	.00	.00	.00	.00	.00	.18	11	21	11	35	.07	.31
13	.00	.00	.00	.00	.00	.18	9.4	24	9.0	29	.06	.08
14	.00	.00	.00	.00	.00	.18	8.3	32	8.6	24	.09	.06
15	.00	.00	.00	.00	.00	.35	7.4	28	8.7	20	.07	.05
16	.00	.00	.00	.00	.04	.71	6.8	23	7.7	16	.05	.04
17	.00	.00	.00	.00	.04	1.2	6.5	16	7.6	14	.08	.03
18	.00	.00	.00	.00	.04	1.8	5.7	11	5.4	12	.07	.24
19	.00	.00	.00	.00	.04	3.5	5.0	11	6.3	10	.07	.77
20	.00	.00	.00	.00	.04	8.8	4.6	12	7.4	9.1	.07	.34
21	.00	.00	.00	.00	.04	11	4.3	13	5.9	8.4	.09	.36
22	.00	.00	.00	.00	.04	28	3.8	16	5.4	6.9	.11	7.9
23	.00	.00	.00	.00	.04	138	3.9	12	6.1	6.3	.10	11
24	.00	.00	.00	.00	.04	106	3.6	10	6.7	5.6	.07	9.0
25	.00	.00	.00	.00	.04	100	3.3	8.6	6.4	4.3	3.0	6.6
26	.00	.00	.00	.00	.00	102	2.5	7.8	25	3.1	1.3	4.5
27	.00	.00	.00	.00	.00	115	2.5	6.2	30	2.6	.47	2.7
28	.00	.00	.00	.00	.00	120	3.2	5.0	96	2.2	.20	1.9
29	.00	.00	.00	.00	---	127	2.9	4.1	68	1.7	.17	1.5
30	.00	.00	.00	.00	---	110	2.3	5.7	57	1.4	.13	1.6
31	.00	---	.00	.00	---	81	---	14	---	.92	.11	---
TOTAL	.00	.00	.00	.00	.40	1055.12	445.0	348.8	834.2	1015.52	9.70	49.92
MEAN	.000	.000	.000	.000	.014	34.0	14.8	11.3	27.8	32.8	.31	1.66
MAX	.00	.00	.00	.00	.04	138	62	32	96	133	3.0	11
MIN	.00	.00	.00	.00	.00	.00	2.3	2.0	5.4	.92	.04	.03
AC-FT	.00	.00	.00	.00	.8	2090	883	692	1650	2010	19	99

CAL YR 1977 TOTAL 51.73 MEAN .14 MAX 2.8 MIN .00 AC-FT 103
WTR YR 1978 TOTAL 3758.66 MEAN 10.3 MAX 138 MIN .00 AC-FT 7460

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND
(International gaging station)

LOCATION.--Lat 48°59'24", long 101°57'28", in NW¼SE¼NE¼ sec.33, T.164 N., R.87 W., Renville County, Hydrologic Unit 09010001, on right bank 0.8 mi (1.3 km) downstream from international boundary, 16 mi (26 km) northwest of Sherwood, and at mile 511.4 (822.8 km).

DRAINAGE AREA.--8,940 mi² (23,150 km²), approximately, of which about 5,900 mi² (15,300 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1934, 1945. WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,603.73 ft (488.817 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 8, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for the winter period, which are fair. Some regulation by reservoirs in Canada. Some small diversions for irrigation and municipal supply.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--48 years, 137 ft³/s (3.880 m³/s), 99,260 acre-ft/yr (122 hm³/yr); median of yearly mean discharges, 79 ft³/s (2.24 m³/s), 57,200 acre-ft/yr (71 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft³/s (419 m³/s) Apr. 10, 1976, gage height, 25.15 ft (7.666 m); no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1927 reached a stage of about 22 ft (6.7 m) and flood in 1904 reached a stage of about 25.8 ft (7.86 m) from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,570 ft³/s (44.5 m³/s) Apr. 5, gage height, 14.29 ft (4.356 m); no flow for part of Nov. 8 during repair of control.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.5	4.0	3.2	1.6	.90	641	138	81	91	168	57
2	1.4	2.7	4.0	3.2	1.4	.90	764	132	81	102	155	58
3	1.6	2.3	4.2	3.2	1.2	.90	1030	123	77	103	152	55
4	1.7	3.1	4.2	3.2	1.2	.90	1320	114	95	92	147	45
5	1.2	2.7	4.2	3.2	1.0	.90	1550	103	133	89	143	35
6	1.1	2.5	4.2	3.2	1.0	.90	1420	105	153	96	137	34
7	1.4	2.4	4.2	3.2	1.0	.90	1210	119	150	204	129	33
8	2.3	2.2	4.2	3.0	.90	.90	926	132	145	323	125	32
9	2.4	1.8	4.0	2.8	.90	1.0	623	127	132	393	117	30
10	2.0	1.7	4.0	2.6	.80	1.0	560	127	119	411	113	26
11	1.9	9.6	4.5	2.4	.80	1.0	652	137	106	322	106	23
12	1.8	16	4.5	2.4	.80	1.0	649	145	91	351	95	24
13	1.8	14	4.5	2.4	.80	1.0	605	146	85	688	85	25
14	1.9	13	4.5	2.4	.80	1.0	504	151	94	932	76	25
15	1.8	12	4.5	2.4	.80	1.0	434	143	116	936	67	26
16	1.6	11	4.5	2.4	.80	1.0	394	135	117	776	59	27
17	1.8	10	4.5	2.4	.80	1.0	370	135	108	774	57	25
18	1.8	9.7	4.5	2.2	.80	1.2	341	134	89	938	56	24
19	1.5	9.4	4.2	2.0	.90	1.2	306	139	76	1060	52	22
20	1.4	9.2	4.2	1.8	.90	1.4	283	134	74	1110	48	22
21	1.3	8.5	4.0	1.8	.90	1.6	270	127	70	1120	46	20
22	1.7	7.6	4.0	1.8	.90	2.0	237	115	71	1110	44	20
23	2.4	6.0	3.8	1.8	.90	3.0	213	110	65	1070	42	20
24	3.1	5.0	3.8	1.8	.90	5.0	204	106	63	879	40	30
25	2.7	4.5	3.8	1.8	.90	8.0	187	102	59	716	37	100
26	1.6	4.0	3.6	1.8	.90	150	167	102	73	645	65	200
27	1.4	4.0	3.6	1.6	.90	500	162	96	106	569	69	270
28	1.4	4.0	3.6	1.6	.90	650	161	99	99	421	67	280
29	1.3	4.0	3.6	1.6	---	750	146	89	64	328	63	250
30	1.6	4.0	3.6	1.6	---	800	135	82	68	267	51	220
31	1.4	---	3.4	1.6	---	750	---	80	---	212	53	---
TOTAL	53.5	188.4	126.4	72.4	26.40	3639.60	16464	3727	2860	17128	2664	2058
MEAN	1.73	6.28	4.08	2.34	.94	117	549	120	95.3	553	85.9	68.6
MAX	3.1	16	4.5	3.2	1.6	800	1550	151	153	1120	168	280
MIN	1.1	1.5	3.4	1.6	.80	.90	135	80	59	89	37	20
AC-FT	106	374	251	144	52	7220	32660	7390	5670	33970	5280	4080

CAL YR 1977 TOTAL 4394.73 MEAN 12.0 MAX 75 MIN .40 AC-FT 8720
WTR YR 1978 TOTAL 49007.70 MEAN 134 MAX 1550 MIN .80 AC-FT 97210

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,700 micromhos Mar. 27, 1978; minimum, 343 micromhos Apr. 14, 1976.
WATER TEMPERATURES: Maximum, 25.0°C July 17, 18, 1978; minimum, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 306 mg/L May 22, 1975; minimum daily mean, 4 mg/L Feb. 14 to Mar. 17, 1978.
SEDIMENT LOADS: Maximum daily, 2,810 tons (2,550 metric tons) Apr. 9, 1976; minimum daily, 0.01 ton (0.01 metric ton) on many days.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 2,700 micromhos Mar. 27; minimum, 420 micromhos Mar. 30.
WATER TEMPERATURES: Maximum, 25.0°C July 17, 18; minimum, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 240 mg/L Aug. 26; minimum daily, 4 mg/L Feb. 14 to Mar. 17.
SEDIMENT LOADS: Maximum daily, 703 tons (638 metric tons) Apr. 5; minimum daily, 0.01 ton (0.01 metric ton) Feb. 6 to Mar. 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
04...	1140	--	1.7	1130	8.0	8.0	--	--	6.4	57
20...	1140	--	1.5	1160	7.9	6.0	23	--	9.0	76
NOV										
01...	0900	--	1.4	1120	8.1	5.0	--	--	--	--
16...	1105	--	13	1380	8.5	.0	12	--	12.5	91
29...	1730	4.0	--	1800	8.1	.0	--	--	6.9	50
DEC										
15...	1200	4.5	--	2110	8.0	.0	27	--	3.9	28
JAN										
06...	1545	--	3.2	1960	7.5	.0	--	--	4.4	32
17...	1730	2.4	--	1860	7.0	.0	25	--	4.3	0
FEB										
10...	1640	--	.81	2000	7.5	.0	--	--	2.1	15
23...	1445	.90	--	1950	7.5	.5	12	--	2.4	18
MAR										
10...	1215	--	E1.0	2000	7.5	.0	--	--	2.2	16
23...	1915	3.0	--	935	7.6	.0	65	--	6.8	--
APR										
06...	1800	1420	--	775	8.2	4.0	--	--	10.0	80
19...	1345	306	--	710	9.0	7.0	40	25	12.4	107
MAY										
04...	1600	114	--	670	8.4	14.5	--	--	8.8	91
16...	1530	--	137	885	8.3	17.5	20	--	8.5	93
JUN										
01...	1015	81	--	1050	8.3	14.5	--	--	7.8	80
14...	1430	--	96	1240	8.3	21.0	40	--	7.6	90
28...	1100	99	--	1120	8.2	22.0	--	--	6.3	76
JUL										
14...	1550	--	952	--	--	22.5	--	--	--	--
19...	1500	1060	--	850	8.2	24.0	27	--	5.9	--
AUG										
01...	1830	168	--	775	8.1	21.0	--	--	7.6	90
16...	1530	--	61	740	8.0	21.5	--	--	7.0	80
SEP										
08...	1840	32	--	800	8.0	21.5	--	--	5.6	68
19...	1940	--	22	840	8.0	12.0	19	--	8.2	81

E - Estimated.

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
OCT										
04...	38	--	1650	K27	--	--	--	--	--	--
20...	30	--	1500	K17	430	90	75	60	100	33
NOV										
01...	39	--	--	--	--	--	--	--	--	--
16...	78	--	K220	147	470	92	81	65	140	39
29...	90	--	85	27	--	--	--	--	--	--
DEC										
15...	57	--	K10	K8	580	25	100	81	330	54
JAN										
06...	97	--	K8	<1	--	--	--	--	--	--
17...	52	--	K9	K2	640	140	110	88	220	42
FEB										
10...	52	--	75	K2	--	--	--	--	--	--
23...	35	--	183	K2	620	38	110	84	250	46
MAR										
10...	78	--	--	--	--	--	--	--	--	--
23...	53	49	--	170	260	6	50	33	110	46
APR										
06...	53	--	1000	K15	--	--	--	--	--	--
19...	57	--	950	K12	220	53	47	25	77	42
MAY										
04...	38	--	8300	52	--	--	--	--	--	--
16...	36	--	310	47	300	64	60	37	92	39
JUN										
01...	42	--	6000	280	--	--	--	--	--	--
14...	42	--	440	305	310	12	62	37	190	56
28...	58	--	2500	620	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
19...	44	--	2500	480	230	51	48	27	100	47
AUG										
01...	49	--	K600	109	--	--	--	--	--	--
16...	39	--	2100	100	220	8	48	24	78	42
SEP										
08...	38	--	7700	140	--	--	--	--	--	--
19...	29	--	K300	K18	260	20	57	28	88	41

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
OCT									
04...	--	--	--	--	--	--	--	--	--
20...	2.1	9.3	420	0	340	8.5	220	60	.2
NOV									
01...	--	--	--	--	--	--	--	--	--
16...	2.8	9.6	450	5	380	2.3	250	110	.2
29...	--	--	--	--	--	--	--	--	--
DEC									
15...	5.9	14	680	0	560	11	550	110	.3
JAN									
06...	--	--	--	--	--	--	--	--	--
17...	3.8	14	600	0	490	88	510	77	.2
FEB									
10...	--	--	--	--	--	--	--	--	--
23...	4.4	13	710	0	580	36	430	85	.3
MAR									
10...	--	--	--	--	--	--	--	--	--
23...	3.0	13	310	--	250	12	180	40	.1
APR									
06...	--	--	--	--	--	--	--	--	--
19...	2.3	12	200	2	170	.3	190	14	.2
MAY									
04...	--	--	--	--	--	--	--	--	--
16...	2.3	11	290	0	240	2.3	220	21	.2
JUN									
01...	--	--	--	--	--	--	--	--	--
14...	4.7	12	360	0	300	2.9	370	23	.3
28...	--	--	--	--	--	--	--	--	--
JUL									
14...	--	--	--	--	--	--	--	--	--
19...	2.9	12	220	0	180	2.2	240	12	.3
AUG									
01...	--	--	--	--	--	--	--	--	--
16...	2.3	12	270	0	220	4.3	150	20	.2
SEP									
08...	--	--	--	--	--	--	--	--	--
19...	2.4	10	290	0	240	4.6	150	32	.1

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
04...	--	743	--	1.01	3.4	25	.05	--	.14
20...	7.8	749	740	1.02	3.0	0	.05	.06	.13
NOV									
01...	--	733	--	1.00	2.7	10	.03	--	.06
16...	8.6	902	891	1.23	31.7	1	.02	.01	.04
29...	--	1300	--	1.77	14.0	4	.08	--	.06
DEC									
15...	13	1530	1530	2.08	18.6	36	.10	.09	.34
JAN									
06...	--	1400	--	1.90	12.1	18	.21	--	.58
17...	16	1310	1330	1.78	8.4	9	.22	.28	.64
FEB									
10...	--	1380	--	1.88	3.0	16	.33	--	.75
23...	22	1370	1350	1.86	3.3	3	.52	.55	.80
MAR									
10...	--	1380	--	1.88	--	17	.48	--	.44
23...	12	605	594	.62	4.9	12	1.1	.76	.26
APR									
06...	--	510	--	.69	1960	155	.31	--	.31
19...	1.4	472	468	.64	390	62	.05	.00	.01
MAY									
04...	--	575	--	.78	177	18	.02	--	.01
16...	3.4	593	588	.81	219	15	1.5	.01	.01
JUN									
01...	--	726	--	.99	159	28	.03	--	.01
14...	7.5	870	880	1.18	226	48	.02	.01	.01
28...	--	796	--	1.08	213	106	.19	--	.06
JUL									
14...	--	--	--	--	--	--	--	--	--
19...	6.6	582	556	.79	1670	135	.20	.22	.01
AUG									
01...	--	522	--	.71	237	48	.15	--	.01
16...	1.	483	477	.66	79.6	26	.10	--	.00
SEP									
08...	--	518	--	.70	44.8	38	.02	--	.07
19...	5.8	552	514	.75	32.8	29	.04	.06	.09

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOS-PHORUS, HYDRO-LYZABLE TOTAL (MG/L AS P) (00669)	PHOS-PHORUS, HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)
OCT										
04...	.86	1.0	--	1.1	4.6	.16	--	--	--	--
20...	.76	.89	--	.94	4.2	.10	.07	.02	.06	.08
NOV										
01...	.79	.85	--	.88	3.9	.09	--	--	--	--
16...	.75	.79	--	.81	3.6	.11	.09	.03	.05	.08
29...	1.1	1.2	--	1.3	5.7	.18	--	--	--	--
DEC										
15...	.96	1.3	--	1.4	6.2	.12	.11	.09	.02	.11
JAN										
06...	1.4	2.0	--	2.2	9.8	.12	--	--	--	--
17...	1.3	1.9	--	2.1	9.4	.13	.09	.06	.07	.13
FEB										
10...	2.5	3.2	--	3.5	16	.13	--	--	--	--
23...	.90	1.7	--	2.2	9.8	.12	.08	.07	80	80
MAR										
10...	1.3	1.7	--	2.2	9.7	.09	--	--	--	--
23...	.74	1.0	--	2.1	9.3	.32	.28	.20	.08	.28
APR										
06...	1.6	1.9	--	2.2	9.8	.36	--	--	--	--
19...	1.5	1.5	--	1.6	6.9	.22	.03	.01	.10	.11
MAY										
04...	1.1	1.1	--	1.1	5.0	.11	--	--	--	--
16...	.99	1.0	--	2.5	11	.11	.08	.03	.06	.09
JUN										
01...	1.5	1.5	--	1.5	6.8	.11	--	--	--	--
14...	2.1	2.1	--	2.1	9.4	.16	.07	.07	.08	.15
28...	1.5	1.6	--	1.8	7.9	.27	--	--	--	--
JUL										
19...	1.3	1.3	--	1.5	6.6	.17	.08	.08	.06	.14
AUG										
01...	.96	.97	--	1.1	5.0	.21	--	--	--	--
16...	1.6	1.6	.85	1.7	7.5	.14	--	.10	.00	.10
SEP										
08...	2.3	2.4	--	2.4	11	.18	--	--	--	--
19...	1.0	1.1	--	1.1	5.0	.11	.04	.07	.03	.10

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, ORGANIC TOTAL (MG/L AS P) (00670)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL) (01107)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)
OCT									
04...	--	--	--	--	--	--	--	--	--
20...	.00	--	--	--	--	--	--	--	--
NOV									
01...	--	--	--	--	--	--	--	--	--
16...	.00	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
DEC									
15...	.00	--	--	--	--	--	--	--	--
JAN									
06...	--	--	--	--	--	--	--	--	--
17...	.00	--	--	--	--	--	--	--	--
FEB									
10...	--	--	--	--	--	--	--	--	--
23...	.00	--	--	--	--	--	--	--	--
MAR									
10...	--	--	--	--	--	--	--	--	--
23...	.00	--	--	--	--	--	--	--	--
APR									
06...	--	--	--	--	--	--	--	--	--
19...	.10	50	0	50	3	0	3	300	200
MAY									
04...	--	--	--	--	--	--	--	--	--
16...	.00	--	--	--	--	--	--	--	--
JUN									
01...	--	--	--	--	--	--	--	--	--
14...	.00	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
JUL									
19...	.00	--	--	--	--	--	--	--	--
AUG									
01...	--	--	--	--	--	--	--	--	--
16...	.00	--	--	0	--	--	--	--	--
SEP									
08...	--	--	--	--	--	--	--	--	--
19...	.01	--	--	--	--	--	--	--	--

DATE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLF (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT									
04...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	170	--	--	--
NOV									
01...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	190	--	--	--
29...	--	--	--	--	--	--	--	--	--
DEC									
15...	--	--	--	--	--	440	--	--	--
JAN									
06...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	300	--	--	--
FEB									
10...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	340	--	--	--
MAR									
10...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	180	--	--	--
APR									
06...	--	--	--	--	--	--	--	--	--
19...	100	0	0	0	330	320	1	1	0
MAY									
04...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	270	--	--	--
JUN									
01...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	420	--	--	--
28...	--	--	--	--	--	--	--	--	--
JUL									
19...	--	--	--	--	--	550	--	--	--
AUG									
01...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	300	--	--	--
SEP									
08...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	270	--	--	--

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVFRABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
APR									
06...	--	--	--	--	--	--	--	--	--
19...	10	10	0	1	0	1	5	5	0

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM SUSPENDED RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)
APR												
06...	--	--	--	--	--	--	--	--	--	--	--	--
19...	2000	50	7	3	4	40	0	40	120	110	10	.0
AUG												
01...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	10	--	--	--	--	--	--	--	--	20	--
SEP												
08...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, SUSPENDED RECOV. (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	.0	.1	5	0	5	6	3	3	0	0	1
MAY											
04...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	5	--	--	--	--	--	--
SEP											
08...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS (UG/L)
OCT											
20...	--	--	--	--	--	--	--	--	11	--	1
NOV											
01...	--	--	--	--	--	--	--	--	9.4	--	--
16...	--	--	--	--	--	--	--	--	13	--	1
29...	--	--	--	--	--	--	--	--	15	--	--
DEC											
15...	--	--	--	--	--	--	--	--	18	--	3
JAN											
06...	--	--	--	--	--	--	--	--	16	--	--
17...	--	--	--	--	--	--	--	--	14	--	1
FEB											
10...	--	--	--	--	--	--	--	--	13	--	--
23...	--	--	--	--	--	--	--	--	15	--	1
MAR											
10...	--	--	--	--	--	--	--	--	14	--	--
23...	--	--	--	--	--	--	--	--	16	--	4
APR											
06...	--	--	--	--	--	--	--	--	16	--	--
19...	0	0	0	--	.0	20	10	10	16	.00	4
MAY											
04...	--	--	--	--	--	--	--	--	12	--	--
16...	--	--	--	--	--	--	--	--	14	--	5
JUN											
01...	--	--	--	--	--	--	--	--	15	--	--
14...	--	--	--	--	--	--	--	--	17	--	3
28...	--	--	--	--	--	--	--	--	17	--	--
JUL											
19...	--	--	--	--	--	--	--	--	12	--	1
AUG											
01...	--	--	--	--	--	--	--	--	13	--	--
16...	--	--	--	370	--	--	--	--	13	--	1
SEP											
08...	--	--	--	--	--	--	--	--	13	--	--
19...	--	--	--	--	--	--	--	--	3.2	--	3

DATE	PCB, TOTAL (UG/L) (39516)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)
JAN												
17...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
MAY												
16...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
JUL												
19...	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)
JAN											
17...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00
MAY											
16...	.00	.00	.00	.00	.00	.00	.00	0	.00	.06	.00
JUL											
19...	.00	.00	.00	.00	.00	.00	.00	0	.00	.08	.00

DATE	SILVEX, TOTAL (UG/L) (39760)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
JAN									
17...	.00	--	--	--	--	--	--	--	--
APR									
06...	--	150	575	56	85	100	40	61	80
19...	--	71	59	--	--	--	26	34	43
MAY									
16...	.00	--	--	--	--	--	--	--	--
JUL									
14...	--	162	416	44	67	100	--	--	--
19...	.00	106	303	57	82	100	38	52	78
AUG									
01...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
SEP									
08...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
JAN							
17...	--	--	--	--	--	--	--
APR							
06...	87	90	91	93	95	99	100
19...	46	48	54	63	74	83	100
MAY							
16...	--	--	--	--	--	--	--
JUL							
14...	--	--	--	--	--	--	--
19...	86	88	93	95	97	99	100
AUG							
01...	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--
SEP							
08...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1100	1950	2000	2000	1950	440	820	1080	960	775	750
2	1120	1100	2000	2300	2020	1950	460	850	1110	1030	800	760
3	1140	1100	2000	2000	2000	1950	475	650	1110	940	810	800
4	1100	1100	2130	1960	2020	1950	700	860	1140	920	800	810
5	1100	1120	2180	1950	2020	1950	810	850	1190	950	825	810
6	1100	1120	2180	1950	2000	1950	415	875	1250	950	790	800
7	1100	1100	2230	1950	2000	1950	740	860	1250	970	790	800
8	1100	1100	2280	1950	2000	1950	700	860	1290	1020	780	800
9	1100	1120	2400	1820	2000	1950	715	860	1210	1100	780	810
10	1100	1150	2400	1550	2000	1950	715	850	1150	1280	780	830
11	1150	1180	2480	1850	2000	1950	680	875	1190	850	800	830
12	1100	1200	2400	1850	2000	1950	660	875	1210	890	790	800
13	1100	1250	2250	1850	2000	1950	640	875	1210	825	760	760
14	1100	1250	2400	1850	2000	1950	580	875	1230	910	750	800
15	1100	1300	2180	1800	2000	1950	675	900	1290	870	740	810
16	1110	1350	2150	1800	2000	1950	725	900	1280	880	740	810
17	1110	1300	2050	1780	2000	1980	720	900	1200	885	740	800
18	1110	1400	2080	1800	1980	1950	725	920	1230	850	740	850
19	1100	1500	2080	1900	2000	1980	740	925	1310	850	740	830
20	1120	1550	2100	1900	2000	1980	710	950	1300	880	750	825
21	1120	---	2150	1930	2000	1950	725	960	1300	850	760	850
22	1110	---	2050	1900	2000	1800	725	990	1280	820	800	850
23	1100	1600	2050	1950	2000	1530	750	1000	1260	800	790	850
24	1100	1620	2010	1950	2000	1480	750	1050	1100	790	800	850
25	1090	1660	2000	1950	2000	1000	750	1000	1200	---	805	890
26	1080	1720	2060	1980	2000	1050	775	1000	1180	790	720	890
27	1080	1750	1980	1980	2000	2700	790	1000	1100	700	590	900
28	1080	1800	1960	2000	2000	750	810	1000	1110	740	790	850
29	1100	1800	1930	2000	---	600	800	1050	1100	735	670	900
30	1100	1850	1930	2000	---	420	800	1080	950	750	750	925
31	1100	---	1950	2000	---	425	---	1080	---	770	810	---
MEAN	1100	1360	2130	1920	2000	1700	706	927	1190	885	767	828

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	6.0	.5	.0	.0	.0	.0	13.0	14.0	23.0	20.0	16.5
2	8.0	6.5	.5	.0	.0	.0	.0	13.0	14.0	24.0	18.5	18.5
3	9.5	4.0	.0	.0	.0	.0	.5	13.0	14.5	24.5	17.5	18.5
4	8.0	3.5	.0	.5	.0	.0	.5	13.5	16.5	24.5	17.0	20.0
5	8.5	3.0	.5	.5	.0	.0	.5	14.0	18.0	24.0	18.0	20.0
6	7.5	5.0	.5	.5	.0	.0	4.0	13.5	19.0	24.0	19.0	20.5
7	7.0	5.0	.0	.0	.0	.0	4.0	15.0	16.0	23.0	20.0	19.0
8	7.0	4.0	.5	.0	.0	.0	5.0	13.0	17.0	23.5	20.5	18.5
9	7.0	2.0	.5	.5	.0	.5	5.0	11.5	17.0	21.0	20.0	18.0
10	5.5	2.5	.0	.5	.0	.5	5.0	13.5	18.0	21.0	20.0	18.0
11	5.5	2.0	.0	.5	.0	.5	5.5	13.5	18.0	21.0	21.0	19.0
12	7.0	1.0	.5	.5	.0	.0	5.0	13.0	17.5	22.0	21.0	15.5
13	9.0	1.0	1.0	.5	.0	.0	5.0	12.0	18.5	22.0	22.0	14.0
14	6.0	1.0	1.0	.5	.0	.0	5.0	13.5	18.0	23.0	22.0	13.5
15	6.0	1.5	1.0	.0	.0	.0	5.5	14.5	20.5	23.5	21.5	13.0
16	7.0	.5	1.0	.0	.0	.0	5.5	15.5	20.0	24.5	21.0	13.0
17	8.0	.5	.5	.0	.0	.0	5.5	17.0	19.5	25.0	21.5	14.5
18	7.0	1.0	.5	.0	.0	.5	6.0	17.5	19.5	25.0	19.0	13.5
19	7.0	.5	.5	.0	.0	.5	7.0	18.0	20.0	24.0	16.5	12.5
20	7.0	.5	.5	.0	.0	.5	5.5	15.0	17.0	23.5	18.0	10.5
21	5.5	---	.5	.0	.0	.5	7.0	16.5	17.0	23.0	18.0	10.5
22	5.5	---	1.0	.0	.5	.5	8.0	16.5	19.5	23.0	18.0	11.0
23	5.0	.0	.0	.5	.5	.0	6.0	19.5	20.0	22.0	17.0	12.0
24	7.0	.0	.0	.0	.0	.5	7.0	20.0	21.0	23.0	17.0	12.5
25	8.0	.0	.5	.0	.0	.5	8.0	20.5	23.0	---	18.0	12.5
26	9.0	.0	.0	.0	.0	.5	9.5	18.5	21.5	23.0	18.0	13.5
27	8.0	.5	.0	.0	.0	.5	11.5	18.0	21.0	23.0	19.5	13.0
28	7.0	.0	.0	.0	.0	.5	12.0	18.0	22.0	21.0	19.0	13.0
29	8.0	.0	.5	.0	---	.5	12.5	18.5	23.0	19.0	19.5	13.0
30	9.0	.5	.0	.0	---	.5	13.0	19.0	23.0	19.5	18.0	12.5
31	7.0	---	.0	.0	---	1.0	---	16.5	---	20.0	17.5	---
MEAN	7.5	2.0	.5	.0	.0	.5	6.0	15.5	19.0	23.0	19.0	15.0

05114000 SOURIS (MOUSE) RIVER NEAR SHERWOOD, ND--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11	.04	11	.08	8	.09	10	.09	7	.03	4	.01
2	12	.05	21	.15	8	.09	10	.09	6	.02	4	.01
3	13	.06	16	.10	8	.09	10	.09	6	.02	4	.01
4	12	.06	14	.12	8	.09	10	.09	6	.02	4	.01
5	12	.04	12	.09	8	.09	10	.09	6	.02	4	.01
6	11	.03	11	.07	8	.09	10	.09	5	.01	4	.01
7	12	.05	11	.07	8	.09	10	.09	5	.01	4	.01
8	13	.08	11	.07	8	.09	10	.08	5	.01	4	.01
9	11	.07	10	.05	8	.09	10	.08	5	.01	4	.01
10	11	.06	10	.05	8	.09	10	.07	5	.01	4	.01
11	11	.06	15	.39	9	.11	10	.06	5	.01	4	.01
12	10	.05	14	.60	9	.11	10	.06	5	.01	4	.01
13	10	.05	13	.49	9	.11	10	.06	5	.01	4	.01
14	10	.05	11	.39	9	.11	10	.06	4	.01	4	.01
15	10	.05	10	.32	9	.11	10	.06	4	.01	4	.01
16	10	.04	9	.27	9	.11	10	.06	4	.01	4	.01
17	10	.05	9	.24	9	.11	10	.06	4	.01	4	.01
18	10	.05	8	.21	9	.11	9	.05	4	.01	5	.02
19	10	.04	8	.20	9	.10	9	.05	4	.01	5	.02
20	10	.04	8	.20	9	.10	8	.04	4	.01	5	.02
21	10	.04	8	.18	9	.10	8	.04	4	.01	6	.03
22	11	.05	8	.16	9	.10	8	.04	4	.01	7	.04
23	12	.08	8	.13	9	.09	8	.04	4	.01	8	.06
24	18	.15	8	.11	9	.09	8	.04	4	.01	10	.14
25	15	.11	8	.10	9	.09	8	.04	4	.01	15	.32
26	9	.04	8	.09	9	.09	7	.03	4	.01	38	15
27	9	.03	8	.09	10	.10	7	.03	4	.01	95	128
28	9	.03	8	.09	10	.10	7	.03	4	.01	98	158
29	9	.03	8	.09	10	.10	7	.03	---	---	87	176
30	11	.05	8	.09	10	.10	7	.03	---	---	74	160
31	11	.04	---	---	10	.09	7	.03	---	---	59	119
TOTAL	---	1.67	---	5.25	---	3.03	---	1.80	---	0.34	---	756.02

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	61	106	41	15	39	8.5	118	29	69	31	26	4.0
2	104	215	36	13	39	8.5	120	33	64	27	25	3.9
3	138	384	33	11	39	8.1	107	30	53	22	26	3.9
4	157	560	32	9.8	46	12	86	21	45	18	27	3.3
5	168	703	32	8.9	64	23	79	19	43	17	27	2.6
6	153	587	44	12	76	31	81	21	41	15	28	2.6
7	138	451	59	19	66	27	85	47	39	14	29	2.6
8	123	308	67	24	62	24	91	79	37	12	30	2.6
9	123	207	50	17	54	19	115	122	35	11	30	2.4
10	115	174	38	13	47	15	122	135	32	9.8	26	1.8
11	85	150	36	13	45	13	119	103	30	8.6	24	1.5
12	68	119	38	15	43	11	128	121	29	7.4	23	1.5
13	65	106	34	13	41	9.4	154	286	28	6.4	22	1.5
14	66	90	34	14	46	12	163	410	27	5.5	20	1.4
15	79	93	33	13	63	20	110	278	27	4.9	20	1.0
16	80	85	39	14	60	19	68	142	26	4.1	20	1.5
17	76	76	36	13	55	16	62	130	30	4.6	20	1.4
18	70	64	35	13	55	13	80	203	36	5.4	20	1.3
19	72	59	47	18	58	12	106	303	35	4.9	20	1.2
20	75	57	50	18	68	14	121	363	35	4.5	20	1.2
21	83	61	45	15	71	13	125	378	35	4.3	20	1.1
22	78	50	43	13	84	16	102	306	35	4.2	20	1.1
23	62	36	40	12	84	15	99	286	35	4.0	22	1.2
24	62	34	37	11	87	15	98	233	35	3.8	22	1.0
25	59	30	33	9.1	87	14	95	184	44	4.4	25	6.0
26	53	24	32	8.8	103	28	92	160	240	42	30	21
27	47	21	32	8.3	180	52	89	137	95	18	47	34
28	44	19	44	12	125	33	88	100	76	14	54	41
29	36	14	41	9.9	105	18	87	77	53	9.0	60	40
30	35	13	40	8.9	110	28	81	58	31	4.3	63	37
31	---	---	39	8.4	---	---	75	43	28	4.0	---	---
TOTAL	---	4896	---	403.1	---	531.5	---	4837	---	345.1	---	226.6

TOTAL LOAD FOR YEAR: 12010.21 TONS.

05115500 LAKE DARLING NEAR FOXHOLM, ND

LOCATION.--Lat 48°27'27", long 101°35'14", in NE¼NE¼ sec.1, T.157 N., R.85 W., Ward County, Hydrologic Unit 09010001, on control structure of Lake Darling Dam, reservoir of Fish and Wildlife Service, on Souris River about 6 mi (10 km) north of Foxholm, and at mile 430.0 (691.9 km).

DRAINAGE AREA.--9,450 mi² (24,480 km²), approximately, of which about 6,200 mi² (16,100 km²) is probably noncontributing.

PERIOD OF RECORD.--April 1936 to current year (no winter records 1936-39).

REVISED RECORDS.--WSP 1338: 1942. WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,577.00 ft (480.670 m) National Geodetic Vertical Datum of 1929. April 1936 to Aug. 8, 1963, nonrecording gages at same site and datum.

REMARKS.--Gage heights frequently affected by wind. Reservoir is formed by earth dam; storage began in April 1936; dam completed in July 1936. Usable capacity, 108,500 acre-ft (134 hm³) between gage heights of 0.0 ft, sill of control gages, and 21.0 ft (6.40 m), crest of spillway. Dead storage, 3,500 acre-ft (4.32 hm³). Figures given herein represent total contents based on capacity table dated June 7, 1943. Water is used during periods of low flow at wildlife refuge downstream.

COOPERATION.--Supplementary gage readings furnished by Fish and Wildlife Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 145,400 acre-ft (179 hm³) Apr. 17, 1976, gage height, 24.24 ft (7.388 m); minimum observed since April 1943 when reservoir was first filled to spillway level, 31,200 acre-ft (38.5 hm³) Feb. 18, 25, 1963, gage height, 10.04 ft (3.060 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 108,200 acre-ft (133 hm³) July 29, gage height, 20.62 ft (6.285 m); minimum, 49,100 acre-ft (60.5 hm³) Oct. 28, gage height, 13.51 ft (4.118 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	13.81	50,900	--
Oct. 31	13.56	49,400	-1,500
Nov. 30	13.57	49,400	0
Dec. 31	*13.67	50,000	+600
CAL YR 1977	--	--	-14,600
Jan. 31	13.66	50,000	0
Feb. 28	13.66	50,000	0
Mar. 31	15.03	59,200	+9,200
Apr. 30	18.68	90,100	+30,900
May 31	*19.00	93,000	+2,900
June 30	18.84	91,600	-1,400
July 31	20.52	107,200	+15,600
Aug. 31	19.11	94,000	-13,200
Sept. 30	18.97	92,700	-1,300
WTR YR 1978	--	--	+41,800

* Estimated.

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND

LOCATION.--Lat 48°22'20", long 101°30'18", in SW¼SE¼ sec.34, T.157 N., R.84 W., Ward County, Hydrologic Unit 09010001, on left bank 30 ft (9 m) upstream from county highway bridge, 3 mi (5 km) east of Foxholm, 19 mi (31 km) upstream from Des Lacs River, and at mile 414.5 (666.9 km).

DRAINAGE AREA.--9,470 mi² (24,530 km²), approximately, of which about 6,200 mi² (16,100 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1904 to November 1905, March to July 1906 (gage heights only), October 1936 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Mouse River near Foxholm, 1904-6.

REVISED RECORDS.--WSP 1308: 1905. WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,560.73 ft (475.711 m) National Geodetic Vertical Datum of 1929. June 23, 1904, to July 31, 1906, nonrecording gage at site 3.2 mi (5.1 km) upstream at different datum. Apr. 1, 1937, to Mar. 25, 1938, nonrecording gage at site 600 ft (180 m) downstream at datum about 0.5 ft (0.15 m) higher.

REMARKS.--Records good. Flow almost completely regulated since 1936 by Lake Darling (station 05115500) 15 mi (24 km) upstream and several small reservoirs, combined capacity, about 184,000 acre-ft (227 hm³). Some small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--43 years, 143 ft³/s (4.050 m³/s), 103,600 acre-ft/yr (128 hm³/yr); median of yearly mean discharges, 65 ft³/s (1.84 m³/s), 47,100 acre-ft/yr (58 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,600 ft³/s (244 m³/s) Apr. 17, 1976, gage height, 17.17 ft (5.233 m); maximum reverse flow, 25 ft³/s (0.71 m³/s) Apr. 4, 1949 caused by backwater from the Des Lacs River; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 335 ft³/s (9.49 m³/s) Aug. 15, gage height, 7.33 ft (2.234 m), backwater from unknown source; maximum gage height, 8.93 ft (2.722 m) July 21, backwater from unknown source; minimum daily discharge, 0.14 ft³/s (0.004 m³/s) Feb. 13-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	2.3	2.6	2.0	.25	.21	46	219	112	105	330	119
2	7.8	2.6	2.6	2.0	.25	.21	46	135	119	108	330	112
3	7.3	2.3	2.6	2.1	.25	.25	46	3.5	126	108	330	112
4	8.2	2.3	2.8	2.1	.25	.25	45	2.8	126	108	330	112
5	8.2	2.6	2.8	2.1	.25	.25	45	2.6	126	108	330	84
6	5.4	2.8	2.8	2.1	.21	.30	45	2.1	126	108	330	56
7	5.4	2.8	2.8	2.1	.21	.30	45	2.0	126	108	330	54
8	6.4	3.5	2.8	2.0	.21	.30	45	2.6	126	108	330	54
9	6.9	3.0	2.8	1.8	.17	.25	45	1.8	126	108	330	54
10	6.9	2.6	2.6	1.8	.17	.30	23	1.6	126	108	330	54
11	6.9	2.6	2.6	1.8	.17	.48	2.3	1.4	126	108	330	54
12	5.1	2.6	2.6	1.8	.17	.48	2.1	1.6	122	108	330	54
13	6.1	2.6	2.6	1.8	.14	.48	2.1	1.4	119	108	330	52
14	5.4	2.3	2.6	1.8	.14	.48	2.1	.98	116	108	330	52
15	3.5	2.3	2.6	1.4	.14	.48	2.0	.85	116	108	300	52
16	3.5	2.6	2.6	1.1	.14	.38	1.8	.85	112	108	183	52
17	7.3	2.6	2.6	1.1	.17	.30	1.6	.85	112	108	169	52
18	3.0	2.3	2.3	1.1	.17	.48	1.6	38	112	108	180	52
19	2.3	2.3	1.6	.72	.17	.98	1.3	116	116	150	180	51
20	2.6	2.6	1.4	.60	.17	3.5	.98	116	116	310	180	51
21	2.6	2.3	1.4	.60	.17	11	.98	116	112	330	180	50
22	2.6	2.3	1.4	.48	.17	28	135	112	108	330	180	50
23	2.6	2.3	1.4	.48	.21	40	225	105	108	330	183	51
24	2.8	2.3	1.1	.38	.21	37	225	105	108	330	180	51
25	3.5	2.3	1.3	.38	.21	41	225	105	108	330	164	51
26	3.0	2.6	1.6	.38	.21	39	225	105	112	330	130	50
27	2.6	2.8	2.1	.30	.21	44	222	105	108	330	133	48
28	2.3	2.8	2.1	.25	.21	50	222	105	108	330	130	48
29	2.3	2.8	2.1	.25	---	51	222	105	105	330	130	48
30	2.3	2.6	2.0	.25	---	52	222	108	102	330	130	50
31	2.3	---	2.0	.25	---	50	---	108	---	330	130	---
TOTAL	146.3	76.7	69.2	37.32	5.40	453.66	2372.86	1829.93	3485	6031	7482	1830
MEAN	4.72	2.56	2.23	1.20	.19	14.6	79.1	59.0	116	195	241	61.0
MAX	9.2	3.5	2.8	2.1	.25	52	225	219	126	330	330	119
MIN	2.3	2.3	1.1	.25	.14	.21	.98	.85	102	105	130	48
AC-FT	290	152	137	74	11	900	4710	3630	6910	11960	14840	3630

CAL YR 1977 TOTAL 6384.24 MEAN 17.5 MAX 336 MIN .60 AC-FT 12660
WTR YR 1978 TOTAL 23819.37 MEAN 65.3 MAX 330 MIN .14 AC-FT 47250

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1972 to current year.
WATER TEMPERATURE: October 1972 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

REMARKS.--Periods of missing record were due to malfuntion of recorder on many days.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1973-76): Maximum, 1,320 micromhos Jan. 4, 5, 1974; minimum, 234 micromhos June 26, 1974.
WATER TEMPERATURE (water years 1973-76): Maximum, 28.0°C on several days during July 1974 and June 16, 1975; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT												
21...	0925	2.6	930	8.6	8.0	25	--	--	52	--	--	--
NOV												
17...	1105	2.6	1010	8.4	3.0	25	12.5	98	53	1.1	K160	<1
DEC												
16...	1000	2.5	1260	8.0	1.5	33	8.0	60	60	2.6	K50	K1
JAN												
19...	1630	.60	1350	7.7	.5	43	2.0	0	57	1.8	K22	K1
FEB												
21...	1800	.18	1580	7.4	.5	60	.2	0	68	1.5	K28	K2
MAR												
23...	1245	41	1300	7.8	.0	43	8.8	64	76	1.7	K44000	K13
28...	1055	52	975	--	.0	--	--	--	--	--	--	--
APR												
26...	1700	221	860	8.9	11.0	15	14.9	142	84	4.3	330	K3
MAY												
04...	1215	--	860	--	15.0	--	--	--	--	--	--	--
18...	1100	1.0	870	8.9	21.0	13	9.1	105	45	--	K160	K15
JUN												
02...	1140	113	840	--	14.0	--	--	--	--	--	--	--
15...	1130	116	775	9.0	21.0	15	8.2	70	43	--	K11200	K6
29...	1205	--	760	--	24.0	--	--	--	--	--	--	--
JUL												
18...	1500	108	780	8.8	24.5	15	8.4	--	41	--	K160	K10
AUG												
04...	1250	--	780	--	19.5	--	--	--	--	--	--	--
17...	1615	173	830	8.4	21.5	15	5.7	67	41	2.2	K32000	35
SEP												
20...	1115	51	860	8.0	10.5	25	7.6	78	200	1.6	12000	160

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT												
21...	310	0	55	42	90	37	2.2	14	380	1	313	1.5
NOV												
17...	360	0	63	48	100	37	2.3	15	400	24	370	2.9
DEC												
16...	450	12	88	60	130	38	2.7	19	530	0	430	8.5
JAN												
19...	490	0	88	65	150	39	3.0	21	600	0	490	19
FEB												
21...	600	5	110	78	170	37	3.0	23	720	0	590	46
MAR												
23...	470	0	86	62	140	38	2.8	25	580	0	480	15
28...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
26...	290	0	54	37	90	39	2.3	13	320	22	300	.7
MAY												
04...	--	--	--	--	--	--	--	--	--	--	--	--
18...	300	3	54	39	100	41	2.5	9.7	320	18	290	.7
JUN												
02...	--	--	--	--	--	--	--	--	--	--	--	--
15...	270	16	51	35	90	41	2.4	12	260	25	250	.5
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
18...	250	0	47	32	83	41	2.3	12	280	19	260	.8
AUG												
04...	--	--	--	--	--	--	--	--	--	--	--	--
17...	220	0	49	24	91	45	2.7	13	290	0	240	1.8
SEP												
20...	260	22	53	31	88	41	2.4	13	290	0	240	4.6

K - Results based on colony count outside the acceptable range (non-ideal colony count).

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT											
21...	170	25	.2	.4	612	585	.83	4.30	--	--	1.1
NOV											
17...	190	28	.2	.7	672	666	.91	4.72	.04	.02	.06
DEC											
16...	260	36	.2	5.5	837	854	1.14	5.65	.26	.16	.29
JAN											
19...	250	41	.2	13	934	927	1.27	1.51	.18	.22	.59
FEB											
21...	280	53	.3	18	1110	1090	1.51	.54	.03	.01	1.0
MAR											
23...	210	42	.3	16	866	872	1.18	95.9	.10	.10	.54
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
26...	150	26	.2	12	577	562	.78	344	.02	.01	.04
MAY											
04...	--	--	--	--	--	--	--	--	--	--	--
18...	160	24	.2	11	607	595	.83	1.64	.01	.01	.01
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
15...	180	23	.2	1.8	538	547	.73	169	.01	.00	.06
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	140	22	.2	6.3	519	502	.71	151	.02	.04	.07
AUG											
04...	--	--	--	--	--	--	--	--	--	--	--
17...	180	21	.2	3.8	549	527	.75	256	.04	.05	.19
SEP											
20...	160	24	.2	13	570	528	.78	78.5	.26	.29	.88

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)
OCT								
21...	.98	1.1	1.1	4.9	.19	.90	.28	--
NOV								
17...	1.0	1.1	1.1	5.0	.11	.05	.15	--
DEC								
16...	1.5	1.8	2.1	9.1	.20	.15	.46	--
JAN								
19...	1.8	2.4	2.6	11	.34	.24	.74	10
FEB								
21...	2.1	3.1	3.1	14	.58	.41	1.3	--
MAR								
23...	1.9	2.4	2.5	11	.64	.52	1.6	--
APR								
26...	3.7	3.7	3.7	16	.24	.09	.28	90
MAY								
18...	1.4	1.4	1.4	6.2	.31	.25	.77	--
JUN								
15...	1.4	1.5	1.5	6.7	.44	.33	1.0	--
JUL								
18...	1.4	1.5	1.5	6.7	.67	.68	2.1	30
AUG								
17...	1.1	1.3	1.3	5.9	.40	.34	1.0	--
SEP								
20...	1.3	2.2	2.5	11	.31	.25	.77	--

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT								
21...	--	--	--	--	--	--	--	--
NOV								
17...	--	--	--	--	--	--	--	--
DEC								
16...	--	--	--	--	--	--	--	--
JAN								
19...	5	100	0	240	0	10	0	5
FEB								
21...	--	--	--	--	--	--	--	--
MAR								
23...	--	--	--	--	--	--	--	--
APR								
26...	6	100	0	180	2	0	3	3
MAY								
18...	--	--	--	--	--	--	--	--
JUN								
15...	--	--	--	--	--	--	--	--
JUL								
18...	10	200	0	230	0	0	2	6
AUG								
17...	--	--	--	--	--	--	--	--
SEP								
20...	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	CARBON, ORGANIC TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT												
21...	--	30	--	--	--	10	--	--	--	--	--	--
NOV												
17...	--	30	--	--	--	110	--	--	--	--	--	--
DEC												
16...	--	40	--	--	--	360	--	--	--	--	--	--
JAN												
19...	440	60	10	80	1600	1500	.0	1	6	0	20	.00
FEB												
21...	--	520	--	--	--	3200	--	--	--	--	--	--
MAR												
23...	--	50	--	--	--	2400	--	--	--	--	--	--
APR												
26...	200	30	--	40	250	40	.0	0	10	0	18	.00
MAY												
18...	--	10	--	--	--	210	--	--	--	--	--	--
JUN												
15...	--	30	--	--	--	120	--	--	--	--	--	--
JUL												
18...	50	50	4	50	200	160	.0	7	4	0	16	.00
AUG												
17...	--	60	--	--	--	300	--	--	--	--	--	--
SEP												
20...	--	80	--	--	--	190	--	--	--	--	--	--

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L) (38260)
NOV	
17...	.10
DEC	
16...	.10
JAN	
19...	.10
FEB	
21...	.10
MAR	
23...	.10
APR	
26...	.10
MAY	
18...	.00
JUN	
15...	.10
JUL	
18...	.30
AUG	
17...	.10
SEP	
20...	.10

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT		
21...	7	.05
NOV		
17...	6	.04
DEC		
16...	6	.04
JAN		
19...	4	.01
FEB		
21...	5	.00
MAR		
23...	8	.09
APR		
26...	10	6.0
MAY		
18...	4	.01
JUN		
15...	4	1.3
JUL		
18...	2	.58
AUG		
17...	6	2.8
SEP		
20...	12	1.7

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	966	963	---	---	1310	1260	---	---	1630	1610
2	---	---	969	961	1160	1110	1310	1290	---	---	1630	1620
3	---	---	970	961	1160	1100	1290	1280	---	---	1620	1620
4	---	---	966	963	1130	1070	1290	1250	---	---	1630	1620
5	---	---	966	963	1200	1110	1300	1250	---	---	1630	1620
6	---	---	968	962	1180	1110	1320	1280	---	---	1650	1610
7	---	---	967	939	1210	1130	1320	1300	---	---	1620	1590
8	---	---	984	950	1230	1190	1330	1310	1420	1390	1610	1590
9	---	---	993	984	1240	1210	1330	1310	1430	1430	1600	1580
10	---	---	992	980	1240	1220	1330	1280	1450	1440	1590	1570
11	---	---	1000	959	1250	1220	1330	1300	1460	1450	1580	1570
12	---	---	1020	944	1250	1240	1350	1310	1470	1460	1570	1540
13	---	---	1020	984	1250	1230	---	---	1480	1480	1570	1550
14	---	---	1010	977	1260	125C	---	---	1500	1490	1560	1530
15	---	---	1000	974	1260	1240	---	---	1530	1500	1540	1520
16	---	---	1020	923	1270	1260	---	---	1530	1520	1530	1500
17	---	---	1010	978	1270	1250	---	---	1540	1530	1510	1500
18	---	---	985	960	1280	1260	---	---	1560	1550	1510	1500
19	928	918	986	977	1280	1250	---	---	1570	1560	1500	1490
20	931	920	978	921	1280	1260	---	---	1580	1570	1500	1470
21	931	922	1110	1050	1280	1260	---	---	1590	1570	1480	1340
22	934	928	1130	1050	1270	1230	---	---	1590	1580	1330	1270
23	931	929	1130	1100	1260	1190	---	---	1620	1590	1320	1270
24	935	932	1150	1060	1260	1240	---	---	1640	1600	1280	1220
25	940	935	1150	1120	1260	1240	---	---	1620	1610	1250	1170
26	949	944	1150	1130	1260	1240	---	---	1620	1610	1170	1060
27	955	950	1150	1130	1250	1190	---	---	1620	1600	1070	984
28	958	950	1150	1110	---	---	---	---	1660	1610	986	939
29	962	953	1150	1090	---	---	---	---	---	---	974	932
30	965	957	---	---	---	---	---	---	---	---	1040	981
31	963	960	---	---	1300	1240	---	---	---	---	1020	918
MONTH	965	914	1150	921	1300	1070	1350	1250	1660	1390	1650	918

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	924	837	840	834	855	831	794	783	788	760		
2	834	790	855	840	853	832	789	778	---	---		
3	807	790	857	845	831	799	784	776	---	---		
4	801	787	866	854	838	790	785	763	---	---		
5	787	773	869	856	832	791	764	729	---	---		
6	786	754	878	866	828	809	767	743	---	---		
7	743	637	881	865	825	798	776	762	---	---		
8	696	659	871	853	810	789	779	739	---	---		
9	729	691	877	813	801	783	780	728	---	---		
10	684	579	861	772	801	779	786	762	---	---		
11	583	573	---	---	794	762	795	773	---	---		
12	579	567	818	791	785	777	799	766	---	---		
13	582	568	848	807	787	758	794	769	---	---		
14	580	570	---	---	781	749	795	778	---	---		
15	584	576	860	813	786	775	801	790	---	---		
16	590	575	872	819	---	---	---	---	---	---		
17	583	575	897	830	782	731	821	769	---	---		
18	587	577	897	850	775	742	802	768	---	---		
19	585	574	872	836	---	---	795	760	---	---		
20	593	578	894	860	744	725	795	784	---	---		
21	593	574	909	869	758	737	797	786	---	---		
22	660	580	909	882	762	740	796	780	---	---		
23	769	669	903	863	768	752	796	787	---	---		
24	810	766	894	841	764	753	795	773	---	---		
25	869	816	904	858	---	---	795	781	---	---		
26	875	850	---	---	---	---	794	780	---	---		
27	850	840	885	829	---	---	799	779	---	---		
28	843	836	870	837	762	730	801	784	---	---		
29	848	836	857	827	---	---	792	767	---	---		
30	838	832	874	827	791	758	792	769	---	---		
31	---	---	866	822	---	---	788	763	---	---		
MONTH	924	567	909	772	855	725	821	728	788	760		

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	8.0	7.5	2.5	1.5	1.5	1.0	---	---	.5	.0
2	---	---	7.5	6.5	2.0	1.5	1.5	.5	---	---	.5	.5
3	---	---	7.0	5.5	2.5	1.5	1.0	.5	---	---	.5	.0
4	---	---	6.0	4.5	2.5	1.5	.5	.5	---	---	.5	.0
5	---	---	5.0	4.5	2.5	1.0	1.0	.5	---	---	.0	.0
6	---	---	6.0	4.5	1.5	1.0	1.0	.5	---	---	.5	.0
7	---	---	6.0	5.5	2.0	1.0	.5	.5	---	---	.5	.0
8	---	---	5.5	4.0	2.0	1.0	1.0	.5	.0	.0	.5	.0
9	---	---	4.0	3.0	1.0	.5	1.0	.5	.0	.0	.5	.0
10	---	---	3.5	2.5	1.0	.5	1.0	.5	.0	.0	.5	.0
11	---	---	3.5	3.0	1.0	.5	1.0	.5	.0	.0	.5	.0
12	---	---	3.5	3.0	1.0	1.0	1.0	.5	.0	.0	.5	.0
13	---	---	3.5	3.5	1.0	1.0	.5	.0	.0	.0	.5	.0
14	---	---	4.0	3.5	1.0	1.0	.5	.0	.5	.0	.5	.0
15	---	---	4.0	3.5	1.0	1.0	.0	.0	.0	.0	.5	.0
16	---	---	4.0	3.0	1.0	1.0	.0	.0	.0	.0	.5	.0
17	---	---	3.5	3.0	1.0	1.0	.0	.0	.5	.0	.5	.5
18	---	---	3.0	3.0	1.0	1.0	.0	.0	.5	.0	.5	.5
19	9.0	8.0	3.0	3.0	1.0	1.0	.0	.0	.5	.0	1.0	.5
20	9.0	8.5	3.0	3.0	1.0	1.0	---	---	.5	.5	1.0	.5
21	8.5	8.0	4.0	3.0	1.5	1.0	---	---	.5	.0	.5	.0
22	8.0	7.0	3.0	2.0	1.5	1.0	---	---	.5	.0	.0	.0
23	7.0	6.5	2.5	2.0	1.5	1.0	---	---	.5	.0	.0	.0
24	7.5	7.0	2.0	1.5	1.0	1.0	---	---	.5	.0	.0	.0
25	8.5	7.0	2.0	1.5	1.0	1.0	---	---	.5	.0	.0	.0
26	9.5	8.5	1.5	1.5	1.0	1.0	---	---	.5	.0	.5	.0
27	9.0	8.0	2.5	1.5	1.5	1.0	---	---	.5	.0	1.0	.0
28	9.0	8.0	2.0	1.5	1.5	1.0	---	---	.5	.0	1.5	.5
29	9.5	9.0	2.0	1.5	1.0	1.0	---	---	---	---	2.0	.5
30	9.5	9.0	2.5	1.5	1.5	1.0	---	---	---	---	3.5	1.5
31	8.5	8.0	---	---	1.5	1.0	---	---	---	---	3.5	2.5
MONTH	9.5	6.5	8.0	1.5	2.5	.5	1.5	.0	.5	.0	3.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.0	1.5	14.5	12.0	13.5	11.5	26.0	23.0	21.5	20.5		
2	2.5	1.5	15.0	13.0	15.5	12.5	27.0	24.5	21.0	19.0		
3	4.0	2.0	15.0	13.0	17.5	13.5	27.0	25.0	20.5	18.0		
4	4.5	2.0	14.5	14.5	19.5	16.5	26.5	24.0	22.0	19.0		
5	4.5	2.5	15.5	14.5	20.0	16.5	26.5	23.5	22.5	20.0		
6	4.5	2.5	16.5	14.5	18.5	17.5	26.0	24.0	23.0	20.0		
7	4.0	2.0	15.5	13.0	18.0	15.0	25.5	23.0	23.5	21.0		
8	4.0	2.5	13.0	11.5	18.5	16.0	24.0	20.5	23.0	21.5		
9	5.5	3.5	14.5	11.0	19.0	16.5	22.0	18.5	23.0	21.5		
10	4.5	2.5	16.5	13.5	19.0	18.0	23.0	19.5	24.5	22.0		
11	5.0	4.0	---	---	18.0	16.5	23.0	20.5	25.0	22.5		
12	5.0	4.0	15.0	14.0	19.0	16.5	23.0	20.5	23.5	22.0		
13	6.5	4.0	16.0	13.0	20.0	17.5	23.0	20.0	---	---		
14	7.5	4.5	---	---	21.5	18.0	24.5	21.5	25.0	22.5		
15	7.0	6.5	18.0	15.0	22.0	19.5	25.5	23.0	---	---		
16	7.0	6.5	19.0	15.5	---	---	---	---	---	---		
17	6.5	6.5	20.5	18.5	20.0	18.0	24.5	23.0	---	---		
18	8.0	6.0	21.0	18.5	20.5	17.5	25.0	23.0	---	---		
19	8.0	6.0	18.0	15.0	---	---	24.0	22.5	---	---		
20	9.0	6.0	17.0	13.5	17.5	15.0	23.5	22.0	---	---		
21	9.5	7.0	18.0	14.5	20.0	16.0	23.0	22.0	---	---		
22	9.5	7.5	19.5	16.5	19.5	16.5	22.5	21.5	---	---		
23	8.0	7.5	21.0	18.5	22.0	18.0	23.0	21.5	---	---		
24	9.5	7.5	21.5	19.5	23.0	20.5	24.5	22.0	---	---		
25	10.5	8.5	21.0	19.5	---	---	25.0	23.0	---	---		
26	11.5	9.0	---	---	---	---	24.0	23.0	---	---		
27	12.0	10.0	19.5	18.0	---	---	23.0	22.5	---	---		
28	13.0	11.0	20.0	17.5	24.0	20.0	22.5	21.0	---	---		
29	14.5	11.5	21.0	18.0	---	---	21.5	20.0	---	---		
30	13.5	12.0	20.0	17.5	23.5	21.5	22.0	19.5	---	---		
31	---	---	17.5	13.5	---	---	21.5	20.0	---	---		
MONTH	14.5	1.5	21.5	11.0	24.0	11.5	27.0	18.5	25.0	18.0		

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Sept. 22, 1977		
1000	6.7	14.0
1100	6.8	14.0
1200	7.2	14.0
1300	7.2	--
1400	7.6	--
1500	8.4	15.5
1600	8.6	--
1700	9.7	17.0
1800	8.8	--
1900	9.0	16.0
2000	8.8	--
2100	8.3	--
2200	7.4	--
2300	6.9	--
2400	7.0	--
Sept. 23, 1977		
0100	6.6	--
0200	6.8	--
0300	6.8	--
0400	6.7	12.5
0500	6.5	--
0600	6.5	--
0700	6.4	--
0800	6.9	--
0900	7.2	--
1000	7.2	--
1100	7.0	14.0
Jan. 18, 1978		
2000	2.0	.0
2100	1.9	.0
2200	2.0	.0
2300	2.1	.0
2400	2.1	.0
Jan. 19, 1978		
0100	2.0	.0
0200	2.0	0.0
0300	2.0	.0
0400	2.0	.0
0500	2.0	.0
0600	2.0	.0
0700	2.0	.0
0800	2.0	.0
0900	2.0	.0
1000	1.9	.0
1100	1.9	.0
1200	2.0	.0
1300	2.1	.0
1400	1.9	.0
1500	1.9	.0
1600	1.9	.0
1700	1.9	.0
1800	1.9	.0
1900	1.7	.0
2000	1.6	.0
Apr. 26, 1978		
1300	15.3	10.0
1400	15.5	10.5
1500	15.1	11.0
1600	14.9	11.0
1700	14.9	11.5
1800	14.3	11.5
1900	13.9	11.5
2000	13.2	11.5
2100	13.4	11.5
2200	12.7	11.5
2300	12.6	11.5
2400	12.3	11.5
Apr. 27, 1978		
0100	12.5	11.0
0200	12.2	11.0
0300	12.3	11.0
0400	12.5	10.5
0500	12.4	10.5
0600	12.1	10.5
0700	12.5	10.5
0800	12.4	10.0
0900	12.6	10.0
1000	13.3	10.5
1100	14.0	11.0
1200	14.2	11.0
1300	14.2	11.5
Jul. 17, 1978		
2100	7.6	24.5
2200	7.4	24.5
2300	7.2	24.5
2400	6.5	24.5
Jul. 18, 1978		
0100	5.7	24.5
0200	5.2	24.5
0300	4.7	23.5
0400	5.3	23.5
0500	4.2	23.5
0600	3.8	23.5
0700	3.7	23.0
0800	3.8	23.0
0900	3.9	23.0
1000	4.4	23.0
1100	5.0	23.0
1200	5.8	23.5
1300	6.8	24.0
1400	7.9	24.0
1500	8.8	24.5
1600	9.5	25.0
1700	9.8	25.0
1800	10.1	25.0
1900	10.1	25.0
2000	9.4	25.0
2100	8.7	24.5

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 21,77	NOV 17,77	DEC 16,77	JAN 19,78	FEB 21,78	MAR 23,78
TIME	0900	1105	1000	1630	1000	1245
TOTAL CELLS/ML	2500	360	25	260	690	6800
DIVERSITY: DIVISION	0.8	1.7	1.0	0.6	0.0	1.1
.CLASS	0.9	2.1	1.0	0.6	0.0	1.1
..ORDER	0.9	2.1	1.0	0.7	0.0	1.2
...FAMILY	1.8	2.2	1.0	0.7	0.6	1.2
....GENUS	1.9	2.3	1.0	0.7	0.6	1.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	7	2	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	25	1	--	-	--	-	--	-	--	-	1200#	18
....CHLORELLA	49	2	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	230#	86	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....TROCHISCIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	--	-	--	-	12#	50	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....CARTERIA	--	-	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	7	2	--	-	--	-	--	-	260	4
....CHLOROGONIUM	--	-	--	-	--	-	--	-	--	-	--	-
...PHACOTACEAE												
....DYSMORPHOCOCCUS	--	-	--	-	--	-	--	-	--	-	--	-
....PTEROMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	--	-	--	-	8	3	--	-	--	-
....STEPHANODISCUS	25	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	68	10	--	-
...FRAGILARIACEAE												
....FRAGILARIA	74	3	14	4	--	-	--	-	610#	89	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	--	-	7	2	--	-	--	-	11	2	--	-
....PLEUROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	74	3	7	2	--	-	30	11	--	-	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	*	0
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	49	2	--	-	--	-	--	-	--	-	--	-
....KEPHYRION	120	5	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....OCHROMONAS	--	-	180#	50	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
....RHODOMONAS	1100#	46	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	930#	38	71#	20	--	-	--	-	--	-	72	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED .

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 21,77		NOV 17,77		DEC 16,77		JAN 19,78		FEB 21,78		MAR 23,78	
TIME	0000		1105		1000		1630		1800		1245	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCAEAE												
....ANACYSTIS	--	-	28	8	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	1800#	27
....OSCILLATORIA	--	-	--	-	12#	50	--	-	--	-	3200#	47
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	7	2	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	28	8	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	220	3

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

PHYTUPLANKTON ANALYSES, UCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 26,78		MAY 18,78		JUN 15,78		JUL 18,78		AUG 17,78		SEP 20,78	
TIME	1700		1100		1130		1500		1615		1115	
TOTAL CELLS/ML	39000		670		1000		54000		17000		6500	
DIVERSITY: DIVISION	1.1		1.9		1.5		0.1		0.5		0.9	
.CLASS	1.1		2.2		1.7		0.1		0.5		0.9	
..ORDER	1.7		2.3		1.7		0.7		1.5		1.0	
...FAMILY	1.9		2.6		1.7		1.4		1.7		1.9	
....GENUS	0.0		2.8		2.1		1.4		1.7		2.1	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLORUPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLORUCUCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	120	1	*	0
...MICRACTINIACEAE												
....MICRACTINIUM	11000#	28	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	320	1	--	-	--	-	--	-	*	0	170	3
....CHLURELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	98	2
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	70	1
....TROCHISCIA	320	1	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	--	-	--	-	--	-	--	-	120	1	390	6
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	56	1
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	640	2	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	4100	10	--	-	--	-	--	-	--	-	--	-
....CARTERIA	--	-	150#	23	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	2200	6	19	3	45	4	320	1	240	1	*	0
....CHLOROGONIUM	1600	4	--	-	--	-	--	-	--	-	--	-
...PHACOTACEAE												
....DYSMORPHOCOCCUS	320	1	--	-	--	-	--	-	--	-	--	-
....PTEROMONAS	640	2	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	18000#	44	95	14	--	-	*	0	*	0	170	3
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	*	0	*	0	42	1
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	19	3	--	-	--	-	-	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	*	0
...NAVICULACEAE												
....NAVICULA	--	-	--	-	22	2	--	-	*	0	*	0
....PLEUROSIGMA	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	--	-	--	-	22	2	--	-	*	0	70	1
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-	--	-
....KEPHYRION	--	-	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....OCHROMONAS	--	-	95	14	380#	37	--	-	420	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	320	1	110#	17	--	-	--	-	--	-	--	-
....RHODOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	320	1	110#	17	67	7	*	0	120	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 26,78		MAY 18,78		JUN 15,78		JUL 18,78		AUG 17,78		SEP 20,78	
TIME	1700		1100		1130		1500		1615		1115	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	7700	14	67000#	39	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	130	13	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	360#	35	360000#	66	85000#	49	32000#	49
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	99000#	18	730	4	21000#	32
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	57	9	--	-	--	-	--	-	56	1
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$)		Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Aug. 17	32	5,200	3,230	10.0	1.11	197	Polyethylene strip

05116000 SOURIS (MOUSE) RIVER NEAR FOXHOLM, ND--Continued

BENTHIC INVERTEBRATE ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	OCT 21,77	MAY 18,78	AUG 17,78
TIME	0000	1100	1615
TOTAL COUNT	36	166	933
DIVERSITY: PHYLUM	0.7	0.1	0.1
.CLASS	0.7	0.9	0.7
..ORDER	1.0	0.0	1.0
...FAMILY	0.0	0.0	1.0
....GENUS	0.0	0.0	1.1
....GENUS-INSECTA	0.0	0.0	2.8
ORGANISM	COUNT	COUNT	COUNT
ANNELIDA			
.HIRUDINEA	--	1	--
..RHYNCHOBDELLIDA			
...GLOSSIPHONIIDAE			
....UNKNOWN GENUS	--	--	7
ARTHROPOD(ARTHROPODS)			
.CRUSTACEA			
..AMPHIPODA			
...TALITRIDAE			
....HYALLELA			
.....H.AZTECA	--	--	783
.ARACHNIDA			
..ACARINA			
...UNKNOWN FAMILY			
....UNKNOWN GENUS #1	--	--	1
.CRUSTACEA			
..AMPHIPODA	--	40	--
.INSECTA			
..COLEOPTERA			
...DYTISCIDAE			
....LACCOPHILUS	--	--	3
...ELMIDAE	--	1	--
..DIPTERA			
...CHIRONOMIDAE			
....ABLABESMYIA	--	--	1
....CONCHAPELOPIA	--	--	2
....EINFELDIA	--	--	20
....ENDOCHIRONOMUS	--	--	2
....GLYPTOTENDIPES	--	--	14
....PARACHIRONOMUS	--	--	1
....PARATANYTARSUS	--	--	5
....POLYPEDILUM	--	--	3
....TANYTARSUS	--	--	5
..EPHEMEROPTERA	--	9	--
...CAENIDAE			
....CAENIS	--	--	12
..ODONATA			
...COENAGRIIDAE			
....UNKNOWN GENUS	--	--	7
..TRICHOPTERA	3	20	--
...POLYCENTROPODIDAE			
....POLYCENTROPUS	--	--	57
..DIPTERA			
...CHIRONOMIDAE	27	93	--
..ODONATA			
...COENAGRIIDAE	--	1	--
..DIPTERA			
...CHIRONOMIDAE			
....LIMNOCHIRONOMUS	--	--	1
MOLLUSCA (MOLLUSCS)			
.GASTROPODA			
..BASOMMATOPHORA			
...PHYSIDAE	6	--	--
....PHYSA	--	--	8
...PLANORBIDAE	--	1	--
....HELISOMA	--	--	1

05116500 DES LACS RIVER AT FOXHOLM, ND

LOCATION.--Lat 48°22'14", long 101°34'11", in NW¼NE¼NW¼ sec.2, T.156 N., R.85 W., Ward County, Hydrologic Unit 09010002, on left bank 200 ft (60 m) upstream from county highway bridge in Foxholm, and at mile 23.0 (37.0 km).

DRAINAGE AREA.--939 mi² (2,432 km²), of which about 400 mi² (1,040 km²) is probably noncontributing.

PERIOD OF RECORD.--June 1904 to July 1906, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,632.98 ft (497.732 m) National Geodetic Vertical Datum of 1929. June 14 to Oct. 23, 1955, nonrecording gage at site 200 ft (60 m) downstream from present gage at same datum. See WSP 1728 to 1913 for history of changes prior to June 14, 1955.

REMARKS.--Records good. Some regulation at low flow by a series of wildlife refuge ponds, beginning about 53 mi (85 km) upstream, combined capacity about 64,000 acre-ft (79 hm³). Some small diversions for irrigation above station.

AVERAGE DISCHARGE.--35 years, 31.2 ft³/s (0.884 m³/s), 22,600 acre-ft/yr (27.9 hm³/yr); median of yearly mean discharges, 17 ft³/s (0.48 m³/s), 12,300 acre-ft/yr (15 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,660 ft³/s (103.7 m³/s) Apr. 30, 1970, gage height, 20.71 ft (6.312 m), from floodmark; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 700 ft³/s (19.8 m³/s) Mar. 27, gage height, 13.33 ft (4.063 m), backwater from ice; minimum daily, 0.01 ft³/s (<0.001 m³/s) Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.0	1.3	.34	.02	.04	170	9.8	12	8.5	1.5	.85
2	1.8	2.0	1.3	.32	.02	.04	87	9.0	15	7.3	1.3	.85
3	1.7	1.8	1.2	.32	.02	.04	50	8.3	15	6.6	1.2	.85
4	1.7	1.8	1.0	.32	.02	.04	41	8.3	12	7.0	1.1	.85
5	1.7	1.7	1.1	.32	.02	.04	50	8.1	9.0	8.1	1.1	.80
6	1.7	1.8	.90	.32	.03	.04	68	8.5	7.3	7.7	1.0	.80
7	1.7	1.9	.73	.29	.03	.04	64	8.9	6.1	7.3	1.0	.80
8	1.7	1.9	.66	.27	.02	.04	44	16	5.6	6.4	1.0	1.5
9	1.7	1.8	.54	.27	.01	.05	34	28	6.1	5.9	1.0	1.1
10	1.7	1.8	.46	.25	.02	.09	31	34	6.1	5.4	1.0	.90
11	1.7	1.8	.51	.22	.02	.27	30	22	6.2	5.0	.95	.93
12	1.7	1.8	.57	.22	.02	.76	80	20	5.6	11	.95	5.2
13	1.7	1.8	.51	.20	.02	.93	43	35	5.2	16	.95	7.9
14	1.7	1.8	.54	.20	.02	.90	25	61	5.1	27	.95	7.0
15	1.8	1.8	.57	.20	.02	.69	22	44	5.1	14	.90	5.0
16	1.8	1.9	.57	.20	.02	.51	21	30	5.4	9.2	.90	3.5
17	1.8	1.8	.57	.20	.02	.44	20	25	4.9	7.0	.90	3.0
18	1.8	1.7	.63	.18	.02	.69	21	21	6.1	5.8	.90	2.6
19	1.8	1.9	.69	.18	.02	1.4	21	17	7.9	5.2	.90	2.8
20	1.8	1.8	.60	.17	.03	2.6	19	14	8.5	4.4	.85	2.8
21	1.8	1.7	.57	.17	.03	5.5	16	13	7.7	3.8	.85	2.5
22	2.0	1.3	.54	.17	.03	12	16	10	7.2	3.4	.85	2.2
23	2.0	1.6	.51	.17	.03	17	17	8.9	7.2	3.2	.80	2.0
24	2.0	1.4	.48	.18	.03	50	16	7.9	7.2	3.3	.80	1.8
25	1.9	1.2	.41	.20	.03	170	13	7.3	7.3	3.7	.80	1.6
26	1.5	.97	.38	.18	.04	350	14	7.3	23	3.8	1.0	1.4
27	1.0	.97	.36	.17	.04	650	13	7.0	29	2.3	4.0	1.4
28	1.8	1.0	.34	.13	.04	600	12	6.0	22	2.2	2.0	1.8
29	1.9	1.0	.34	.09	---	450	12	5.6	14	1.8	1.2	1.7
30	1.7	1.2	.36	.04	---	287	11	5.5	9.8	1.6	.95	1.6
31	2.2	---	.36	.03	---	236	---	7.7	---	1.6	.90	---
TOTAL	54.6	48.94	19.60	6.52	.69	2837.15	1081	514.1	288.6	205.5	34.50	68.03
MEAN	1.76	1.63	.63	.21	.025	91.5	36.0	16.6	9.62	6.63	1.11	2.27
MAX	2.2	2.0	1.3	.34	.04	650	170	61	29	27	4.0	7.9
MIN	1.0	.97	.34	.03	.01	.04	11	5.5	4.9	1.6	.80	.80
AC-FT	108	97	39	13	1.4	5630	2140	1020	572	408	68	135

CAL YR 1977 TOTAL 979.76 MEAN 2.68 MAX 27 MIN .00 AC-FT 1940
WTR YR 1978 TOTAL 5159.23 MEAN 14.1 MAX 650 MIN .01 AC-FT 10230

05117500 SOURIS (MOUSE) RIVER ABOVE MINOT, ND

LOCATION.--Lat 48°14'45", long 101°22'15", in NW¼NW¼SE¼ sec.17, T.155 N., R.83 W., Ward County, Hydrologic Unit 09010001, on right bank 180 ft (55 m) downstream from county highway bridge 3.5 mi (5.6 km) west of Minot, 7 mi (11 km) downstream from Des Lacs River, and at mile 388.5 (625.1 km).

DRAINAGE AREA.--10,600 mi² (27,500 km²), approximately, of which about 6,700 mi² (17,400 km²) is probably noncontributing.

PERIOD OF RECORD.--May 1903 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Mouse River at Minot 1903-24, Souris River at Minot, 1927-28, 1929-34, and Souris River near Minot 1928-29.

REVISED RECORDS.--WSP 1308: 1905, 1909-14, 1918, 1924-25, 1927. WSP 1338: 1903-4, 1906, 1917, 1928, 1929(M). WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,545.75 ft (471.145 m) National Geodetic Vertical Datum of 1929. May 5, 1903, to Sept. 30, 1928, Oct. 1, 1929, to Sept. 30, 1934, nonrecording gages at mile 377.6 (607.6 km) in Minot, at datum 12.5 ft (3.8 m) lower, Oct. 1, 1928, to Sept. 30, 1929, nonrecording gages at Saugstad bridge at mile 366.8 (590.2 km), 5 mi (8 km) southeast of Minot and at datum 19.2 ft (5.85 m) lower than present datum. Records equivalent except those for periods of extreme low flow, as some industrial and sanitary waste enters river between the sites.

REMARKS.--Records good. Flow almost completely regulated by Lake Darling (station 05115500), 41 mi (66 km) upstream and several smaller reservoirs; combined capacity, about 248,000 acre-ft (306 hm³). Some small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--75 years, 167 ft³/s (4.729 m³/s), 121,000 acre-ft/yr (149 hm³/yr); median of yearly mean discharges, 90 ft³/s (2.55 m³/s), 65,200 acre-ft/yr (80 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Apr. 20, 1904, gage height, 21.9 ft (6.675 m) at site in Minot, from rating curve extended above 8,100 ft³/s (229 m³/s); no flow at times in some years. Maximum stage at present site, about 23 ft (7.0 m) in April 1904.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage in Minot at least 3 ft (0.9 m) higher than 1904 peak, in 1881, according to Apr. 20, 1904 issue of Minot Daily Optic. This peak probably occurred in 1882.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft³/s (31.2 m³/s) Mar. 28, gage height, 10.05 ft (3.063 m), backwater from ice; minimum daily, 0.50 ft³/s (0.014 m³/s) Feb. 6-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	4.0	6.0	2.0	.80	.90	379	230	122	116	328	128
2	12	4.0	6.0	2.0	.80	.90	252	228	119	110	330	122
3	11	4.0	6.0	2.0	.60	.90	173	176	125	102	330	113
4	11	4.0	5.5	2.0	.60	.90	128	55	134	108	330	113
5	10	4.0	5.5	2.0	.60	.90	128	25	128	113	330	110
6	10	4.0	5.0	2.0	.50	.90	149	21	122	108	330	85
7	11	4.5	4.5	2.0	.50	.90	152	22	119	102	330	51
8	9.1	4.5	4.0	2.0	.50	.90	151	30	116	102	330	45
9	8.4	4.5	4.0	1.8	.50	1.0	113	46	113	105	330	47
10	8.4	4.5	3.5	1.8	.50	1.2	105	50	113	105	332	48
11	8.4	4.5	3.0	1.6	.50	1.4	88	55	113	100	332	50
12	8.4	4.5	3.0	1.6	.50	1.4	67	45	113	105	334	63
13	8.4	4.5	3.5	1.6	.50	1.2	65	44	113	108	334	58
14	7.0	4.5	4.0	1.6	.60	1.2	69	48	110	110	332	53
15	6.5	4.5	4.0	1.6	.60	1.8	50	64	108	128	334	53
16	6.0	5.0	4.5	1.6	.60	4.0	45	60	108	116	292	53
17	6.0	5.0	5.0	1.6	.60	4.0	40	50	102	113	223	51
18	5.5	4.5	5.0	1.6	.60	4.0	47	45	100	110	182	51
19	5.0	4.5	4.5	1.6	.60	5.0	50	45	100	108	182	53
20	5.5	5.0	4.0	1.6	.70	10	48	110	105	155	182	51
21	5.0	5.0	3.5	1.6	.70	25	44	122	105	274	182	51
22	4.5	5.0	3.5	1.4	.70	45	42	119	102	314	182	51
23	4.5	4.5	3.5	1.4	.80	50	117	116	98	318	182	50
24	4.5	4.5	3.5	1.4	.80	75	230	113	98	320	182	48
25	4.5	4.0	3.5	1.6	.90	120	237	110	100	320	182	48
26	4.0	3.5	3.0	1.6	.90	300	237	108	113	320	170	48
27	3.5	4.0	2.5	1.4	.90	900	235	105	164	320	146	48
28	4.0	4.5	2.5	1.2	.90	1050	233	105	137	322	137	47
29	4.5	4.5	2.5	1.2	---	1000	233	105	119	324	131	47
30	4.5	5.0	2.5	1.0	---	870	233	105	116	328	128	48
31	4.5	---	2.5	.80	---	540	---	116	---	328	128	---
TOTAL	218.6	133.0	123.5	50.20	18.30	5018.40	4140	2678	3435	5712	7777	1884
MEAN	7.05	4.43	3.98	1.62	.65	162	138	86.4	115	184	251	62.8
MAX	13	5.0	6.0	2.0	.90	1050	379	230	164	328	334	128
MIN	3.5	3.5	2.5	.80	.50	.90	40	21	98	100	128	45
AC-FT	434	264	245	100	36	9950	8210	5310	6810	11330	15430	3740

CAL YR 1977 TOTAL 7273.10 MEAN 19.9 MAX 328 MIN .20 AC-FT 14430
WTR YR 1978 TOTAL 31188.00 MEAN 85.4 MAX 1050 MIN .50 AC-FT 61860

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND

LOCATION.--Lat 48°09'35", long 100°43'45", in NW¼SW¼ sec.17, T.154 N., R.78 W., McHenry County, Hydrologic Unit 09010003, on left bank 2.7 mi (4.3 km) north of Verendrye, 19 mi (31 km) upstream from mouth of Wintering River, and at mile 302.0 (485.9 km).

DRAINAGE AREA.--11,300 mi^2 (29,300 km^2), approximately, of which about 6,900 mi^2 (17,900 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to June 1933 (gage heights only), April 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,464.87 ft (446.492 m) National Geodetic Vertical Datum of 1929. February to June 1933, at site 4 mi (6 km) upstream at datum 1.65 ft (0.503 m) higher. April 1, 1937 to Mar. 3, 1938, nonrecording gage at present site, at datum 1.97 ft (0.600 m) higher.

REMARKS.--Records good. Flow regulated by reservoirs on Souris and Des Lacs Rivers, the largest of which is Lake Darling (station 05115500), 128 mi (206 km) upstream, combined capacity about 248,000 acre-ft (306 hm^3). Some small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--41 years, 213 ft^3/s (6.032 m^3/s), 154,300 acre-ft/yr (190 hm^3/yr); median of yearly mean discharges, 120 ft^3/s (3.40 m^3/s), 86,900 acre-ft/yr (110 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft^3/s (280 m^3/s) Apr. 19, 1976, gage height, 17.84 ft (5.438 m); minimum recorded, 0.3 ft^3/s (0.008 m^3/s) Aug. 11-19, 1937, Oct. 10-21, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft^3/s (36.8 m^3/s) Mar. 31, gage height, 14.38 ft (4.383 m); minimum daily, 5.5 ft^3/s (0.16 m^3/s) Mar. 1-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	23	7.0	19	9.0	5.5	1200	269	139	146	313	115
2	28	25	7.0	19	9.0	5.5	1100	266	180	146	314	115
3	25	35	7.0	19	9.0	5.5	950	254	195	117	314	120
4	22	28	10	18	8.5	5.5	740	252	172	105	314	117
5	18	24	22	17	8.5	5.5	494	254	154	117	314	115
6	15	20	26	17	8.5	5.5	346	205	144	129	316	110
7	12	15	24	16	8.5	5.5	319	124	141	117	316	105
8	15	14	22	16	8.0	5.5	303	88	136	127	318	105
9	22	14	20	15	8.0	5.5	280	74	132	112	318	93
10	22	11	20	15	7.5	5.5	293	70	129	115	318	79
11	20	11	22	14	7.5	5.5	220	91	124	108	316	63
12	18	9.8	26	13	7.5	5.5	188	79	122	98	316	58
13	17	9.8	28	12	7.0	5.5	195	84	122	105	314	61
14	15	9.3	28	11	7.0	5.5	182	103	122	100	314	69
15	13	9.8	28	10	7.0	5.5	127	105	122	117	314	132
16	11	10	28	10	7.0	5.5	103	103	141	110	335	108
17	10	9.8	28	9.5	6.5	5.5	120	103	154	110	319	91
18	9.8	9.8	28	9.5	6.5	6.0	110	110	144	115	308	96
19	9.3	9.3	28	9.5	6.5	10	98	124	141	120	256	91
20	9.3	11	28	9.5	6.5	70	86	117	139	117	190	86
21	9.3	10	26	9.5	6.5	150	93	105	132	122	175	79
22	10	8.9	24	9.5	6.5	350	81	86	122	124	162	79
23	10	7.9	24	9.5	6.5	600	79	103	130	162	162	79
24	9.8	7.0	24	9.5	6.5	700	81	172	130	269	162	74
25	9.3	7.0	24	9.5	6.0	750	81	159	112	330	164	72
26	9.3	7.0	24	9.5	6.0	800	175	146	108	345	164	60
27	9.3	7.0	24	9.5	6.0	800	268	132	112	343	159	50
28	9.8	7.0	22	9.0	6.0	900	269	120	120	338	195	47
29	9.8	7.0	20	9.0	---	1100	291	110	167	327	217	47
30	9.3	7.0	20	9.0	---	1200	284	108	190	314	177	46
31	11	---	20	9.0	---	1250	---	122	---	311	127	---
TOTAL	444.3	384.4	689.0	381.5	203.5	8779.5	9156	4238	4176	5316	8001	2562
MEAN	14.3	12.8	22.2	12.3	7.27	283	305	137	139	171	258	85.4
MAX	28	35	28	19	9.0	1250	1200	269	195	345	335	132
MIN	9.3	7.0	7.0	9.0	6.0	5.5	79	70	108	98	127	46
AC-FT	881	762	1370	757	404	17410	18160	8410	8280	10540	15870	5080

CAL YR 1977 TOTAL 13625.0 MEAN 37.3 MAX 913 MIN 4.0 AC-FT 27030
WTR YR 1978 TOTAL 44331.2 MEAN 121 MAX 1250 MIN 5.5 AC-FT 87930

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-51, 1952 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1973 to current year.
WATER TEMPERATURES: October 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,110 micromhos Dec. 12, 1977; minimum, 371 micromhos Mar. 25, 1978.
WATER TEMPERATURES: Maximum, 28.0°C July 19, 1974; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 2,110 micromhos Dec. 12; minimum, 371 micromhos Mar. 25.
WATER TEMPERATURES: Maximum, 26.0°C July 3, 4, 5, 16, 17; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT										
18...	1600	--	9.6	1550	8.1	7.0	23	380	0	79
NOV										
14...	1715	9.3	--	1380	8.2	2.0	10	450	75	97
DEC										
13...	1615	--	28	1950	7.8	.5	35	510	54	100
JAN										
17...	1110	--	9.5	1830	7.0	.0	30	520	58	110
FEB										
27...	1415	--	6.0	1630	7.5	.0	6	580	75	130
MAR										
22...	1430	--	350	860	6.0	.0	55	270	68	60
APR										
18...	1045	--	110	920	8.3	6.0	27	310	76	66
MAY										
01...	2200	--	--	840	--	15.5	--	--	--	--
15...	1920	--	104	1210	8.6	17.0	20	390	56	77
JUN										
05...	1415	--	--	1100	--	19.0	--	--	--	--
12...	2000	--	120	1010	84.0	18.5	20	320	17	61
27...	1810	--	--	1050	--	23.5	--	--	--	--
JUL										
12...	2045	--	110	910	8.3	22.0	15	270	13	51
AUG										
02...	1000	--	--	820	--	20.0	--	--	--	--
14...	1915	--	300	820	8.6	23.5	15	250	5	49
SEP										
09...	1615	--	--	870	--	21.5	--	--	--	--
21...	1930	--	82	830	8.1	12.0	13	240	15	50

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
18...	45	210	53	4.7	14	470	0	390	6.0	330
NOV										
14...	51	160	43	3.3	11	460	0	380	4.6	370
DEC										
13...	62	270	53	5.2	17	550	0	450	14	500
JAN										
17...	59	240	49	4.6	14	560	0	460	82	450
FEB										
27...	63	180	48	3.2	11	620	0	510	31	360
MAR										
22...	30	94	41	2.5	12	250	0	210	4.0	240
APR										
18...	34	97	40	2.4	9.6	280	0	230	2.2	240
MAY										
01...	--	--	--	--	--	--	--	--	--	--
15...	47	150	45	3.3	11	380	11	330	1.6	320
JUN										
05...	--	--	--	--	--	--	--	--	--	--
12...	40	110	42	2.7	12	360	3	300	2.3	210
27...	--	--	--	--	--	--	--	--	--	--
JUL										
12...	34	110	46	2.9	11	310	0	250	2.5	200
AUG										
02...	--	--	--	--	--	--	--	--	--	--
14...	31	87	42	2.4	13	290	4	240	1.2	160
SEP										
09...	--	--	--	--	--	--	--	--	--	--
21...	29	91	43	2.5	11	280	0	230	3.6	180

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
18...	95	.8	14	1030	1020	1.40	26.7	.09	.14
NOV									
14...	40	.3	7.7	955	965	1.30	2[illegible].0	.07	.10
DEC									
13...	120	1.2	18	1370	1370	1.86	184	1.2	.55
JAN									
17...	100	.7	24	1250	1280	1.70	32.1	.30	1.6
FEB									
27...	45	.4	25	1150	1120	1.56	18.6	.31	1.0
MAR									
22...	14	.1	11	589	588	.80	557	.71	.25
APR									
18...	19	.2	11	619	618	.84	184	.43	.04
MAY									
01...	--	--	--	--	--	--	--	--	--
15...	28	.2	4.9	845	838	1.15	237	.03	.08
JUN									
05...	--	--	--	--	--	--	--	--	--
12...	24	.2	10	679	649	.92	220	.90	.40
27...	--	--	--	--	--	--	--	--	--
JUL									
12...	28	.2	6.4	609	595	.83	181	.08	.00
AUG									
02...	--	--	--	--	--	--	--	--	--
14...	25	.2	.8	552	514	.75	447	.07	--
SEP									
09...	--	--	--	--	--	--	--	--	--
21...	13	.1	5.7	549	520	.75	122	.28	.01

DATE	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT												
18...	.68	.68	.52	1.6	--	--	--	460	--	--	--	--
NOV												
14...	.25	.18	.09	.28	--	--	--	240	--	--	--	--
DEC												
13...	1.6	1.4	1.0	3.1	--	--	--	530	--	--	--	--
JAN												
17...	3.4	.86	.79	2.4	--	--	--	460	--	--	--	--
FEB												
27...	.21	.10	.09	.28	--	--	--	280	--	--	--	--
MAR												
22...	.44	.31	.18	.55	--	--	--	180	--	--	--	--
APR												
18...	.21	.12	.10	.31	30	2	0	120	0	0	0	0
MAY												
15...	.33	.32	.28	.86	--	--	--	200	--	--	--	--
JUN												
12...	.40	.33	.30	.92	--	--	--	170	--	--	--	--
JUL												
12...	.41	.31	.29	.89	--	--	--	190	--	--	--	--
AUG												
14...	--	.26	--	--	--	--	--	230	--	--	--	--
SEP												
21...	.20	.14	.13	.40	--	--	--	230	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR												
18...	20	0	40	130	.0	0	2	0	380	.0	0	.00

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT		
18...	12	.31
NOV		
14...	8	.20
DEC		
13...	10	.76
JAN		
17...	16	.41
FEB		
27...	18	.29
MAR		
22...	48	45
APR		
18...	21	6.2
MAY		
15...	5	1.4
JUN		
12...	17	5.5
JUL		
12...	20	5.9
AUG		
14...	28	23
SEP		
21...	13	2.9

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1450	1430	1400	1360	1380	1370	1850	1840	1720	1700	1650	1640
2	1430	1360	1350	1320	1370	1370	1850	1830	1700	1690	1650	1650
3	1400	1370	1360	1200	1380	1370	1850	1840	1690	1660	1660	1630
4	1520	1410	1210	1130	1380	1370	1850	1840	1670	1660	1640	1640
5	1570	1520	1280	1220	1450	1380	1850	1840	1670	1660	1650	1640
6	1600	1580	1330	1290	1620	1450	1850	1830	1670	1660	1650	1630
7	1580	1510	1370	1330	1880	1630	1830	1810	1660	1640	1640	1620
8	1510	1470	1370	1360	1900	1870	1810	1800	1650	1640	1630	1610
9	1480	1460	1370	1350	1970	1910	1810	1800	1650	1630	1620	1590
10	1500	1480	1370	1330	2020	1980	1830	1800	1650	1640	1600	1570
11	1620	1500	1340	1330	2090	2020	1840	1820	1650	1630	1590	1580
12	1810	1630	1360	1330	2110	2090	1840	1830	1650	1630	1580	1560
13	1810	1730	1370	1360	2070	1860	1830	1820	1640	1630	1580	1560
14	1720	1640	1390	1380	1840	1610	1840	1820	1640	1620	1580	1570
15	1640	1590	1390	1370	1600	1520	1840	1820	1630	1610	1580	1560
16	1590	1570	1380	1380	1510	1460	1830	1820	1630	1610	1560	1520
17	1570	1550	1380	1380	1460	1450	1840	1820	1630	1610	1510	1470
18	1550	1540	1390	1380	1460	1420	1840	1830	1630	1610	1470	1430
19	1540	1530	1390	1390	1420	1390	1850	1840	1630	1600	1460	1400
20	1520	1520	1400	1390	1390	1380	1850	1840	1630	1610	1420	1290
21	1520	1510	1420	1390	1590	1390	1850	1840	1640	1610	1430	1120
22	1500	1490	1430	1410	1810	1600	1860	1840	1640	1600	1140	706
23	1490	1480	1430	1420	1850	1810	1860	1840	1640	1620	701	431
24	1480	1470	1450	1430	1860	1850	1850	1820	1640	1610	424	374
25	1480	1460	1450	1440	1850	1840	1840	1820	1640	1630	472	371
26	1470	1460	1450	1430	1850	1840	1830	1820	1640	1630	523	469
27	1470	1460	1430	1400	1840	1800	1820	1810	1630	1620	526	466
28	1470	1460	1400	1380	1800	1790	1820	1800	1640	1630	530	472
29	1460	1460	1390	1380	1800	1790	1810	1770	---	---	606	456
30	1460	1440	1390	1380	1830	1800	1770	1740	---	---	582	461
31	1440	1400	---	---	1840	1830	1740	1710	---	---	457	437
MONTH	1810	1360	1450	1130	2110	1370	1860	1710	1720	1600	1660	371

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	468	434	893	834	1160	1060	885	873	827	822	---	---
2	511	469	898	836	1060	1030	876	846	825	820	---	---
3	553	512	929	865	1070	1040	846	835	821	808	---	---
4	593	554	964	892	1090	1070	857	840	811	804	---	---
5	631	592	969	918	1110	1090	909	859	817	804	---	---
6	675	635	970	923	1090	1070	915	902	813	805	---	---
7	716	675	985	975	1050	1000	960	918	806	798	---	---
8	767	716	997	990	994	981	960	940	799	789	---	---
9	779	769	1020	1000	1020	976	943	933	785	777	---	---
10	789	779	1060	1030	1030	971	953	943	780	765	---	---
11	843	784	1070	1010	1030	996	959	939	784	766	---	---
12	859	842	1170	1070	1010	1010	952	879	798	772	---	---
13	875	858	1290	1180	1010	1000	894	863	802	786	---	---
14	878	869	1410	1300	1010	1000	901	864	823	795	---	---
15	874	872	1360	1180	1000	986	932	904	830	825	---	---
16	880	871	1180	1100	997	946	939	908	---	---	---	---
17	917	880	1270	1100	973	950	942	905	---	---	---	---
18	926	920	1370	1290	953	947	921	883	---	---	---	---
19	932	922	1330	1290	1060	957	887	861	---	---	---	---
20	945	925	1300	1280	1070	1050	862	802	---	---	---	---
21	945	879	1280	1180	1040	931	835	805	---	---	---	---
22	916	891	1190	1120	1050	979	847	836	---	---	1020	816
23	949	913	1120	1060	1050	1010	922	842	---	---	1060	1010
24	997	945	1060	1050	1060	973	999	935	---	---	1060	1020
25	1040	997	1080	1060	1060	923	1010	941	---	---	1090	1070
26	1050	1030	1080	1060	1050	924	942	882	---	---	1110	1060
27	1050	956	1100	1070	1050	1030	885	858	---	---	1130	1060
28	1010	949	1160	1100	1050	921	872	856	---	---	1130	1110
29	1090	1000	1240	1170	933	902	873	859	---	---	1150	1120
30	1080	906	1280	1250	946	889	866	847	---	---	1150	1120
31	---	---	1270	1160	---	---	847	818	---	---	---	---
MONTH	1090	434	1410	834	1160	889	1010	802	830	765	1150	816

05120000 SOURIS (MOUSE) RIVER NEAR VERENDRYE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11.0	10.0	7.5	7.0	.5	.5	.0	.0	.0	.0	.0	.0
2	10.5	9.0	7.0	6.0	.5	.0	.0	.0	.0	.0	.0	.0
3	10.5	9.0	6.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0
4	10.5	9.0	5.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
5	9.5	8.5	5.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
6	9.0	8.5	6.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0
7	9.0	7.5	6.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0
8	8.0	7.0	6.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0
9	8.0	7.0	4.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0
10	7.0	6.5	3.0	2.5	.0	.0	.0	.0	.0	.0	.0	.0
11	6.5	6.0	2.5	2.0	.0	.0	.0	.0	.0	.0	.0	.0
12	7.5	6.0	2.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0
13	7.5	7.0	2.5	2.0	.0	.0	.0	.0	.0	.0	.0	.0
14	7.5	7.0	2.5	2.0	.0	.0	.0	.0	.0	.0	.0	.0
15	7.0	6.5	2.5	2.0	.0	.0	.0	.0	.0	.0	.0	.0
16	8.0	6.5	2.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17	8.0	7.0	1.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18	8.0	6.5	1.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.5	6.5	1.5	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20	8.0	7.0	1.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
21	8.0	6.0	.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
22	6.5	5.5	.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
23	6.5	5.5	.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
24	7.5	6.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.0	6.5	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	8.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	8.5	7.5	.5	.0	.0	.0	.0	.0	---	---	.0	.0
30	9.0	8.5	.5	.5	.0	.0	.0	.0	---	---	.5	.0
31	8.5	7.5	---	---	.0	.0	.0	.0	---	---	.5	.0
MONTH	11.0	5.5	7.5	.0	.5	.0	.0	.0	.0	.0	.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	2.0	1.0	15.0	14.0	15.5	14.5	25.0	23.0	21.5	20.5	---	---
2	2.0	1.5	15.5	14.5	15.5	14.0	25.5	24.0	20.5	19.5	---	---
3	2.5	1.5	16.0	14.5	17.0	14.5	26.0	25.0	19.5	18.5	---	---
4	3.5	2.0	16.0	14.5	18.5	16.5	26.0	25.0	20.0	18.5	---	---
5	4.0	3.5	15.5	15.0	19.5	18.0	26.0	24.5	20.5	19.0	---	---
6	5.5	4.0	15.5	14.5	19.5	18.5	25.5	25.0	21.5	20.0	---	---
7	5.5	4.5	15.0	14.0	19.0	17.5	25.5	24.0	22.5	21.0	---	---
8	5.0	4.5	13.5	12.0	19.0	17.5	24.5	22.0	22.5	21.5	---	---
9	6.0	4.5	13.5	11.0	19.5	17.5	22.0	20.5	21.5	21.0	---	---
10	5.5	5.0	15.0	13.0	19.5	19.0	22.0	20.5	22.5	20.5	---	---
11	5.5	4.5	15.0	14.5	19.0	18.0	21.5	20.5	23.0	21.5	---	---
12	5.0	4.5	15.0	14.5	18.5	17.5	23.0	21.0	23.0	22.0	---	---
13	5.5	4.0	16.0	14.0	19.5	17.5	23.5	21.0	23.5	22.5	---	---
14	6.0	4.0	16.5	15.0	21.0	18.5	24.0	22.0	23.5	23.0	---	---
15	6.0	5.5	17.5	15.5	22.5	20.5	25.0	23.0	23.0	22.5	---	---
16	6.0	6.0	19.0	16.0	23.0	21.5	26.0	24.5	---	---	---	---
17	6.5	6.0	20.0	18.0	22.0	21.0	26.0	25.5	---	---	---	---
18	7.0	6.0	20.5	19.0	21.5	20.0	25.5	24.5	---	---	---	---
19	7.5	6.0	20.0	17.5	21.5	20.0	25.0	23.5	---	---	---	---
20	8.0	6.0	18.0	16.0	20.0	19.0	23.5	22.5	---	---	---	---
21	8.0	7.0	18.0	16.0	20.0	18.5	23.0	22.0	---	---	---	---
22	8.5	8.0	19.0	17.0	20.5	19.0	23.0	21.5	---	---	12.5	11.5
23	8.5	8.0	20.5	18.5	22.0	20.0	23.0	21.5	---	---	13.0	12.0
24	9.0	8.0	21.5	20.5	23.5	22.0	24.0	22.5	---	---	13.0	12.5
25	10.0	8.5	21.0	20.5	23.5	23.0	25.0	23.5	---	---	13.5	13.0
26	11.0	9.0	21.0	20.0	23.0	22.0	24.5	23.5	---	---	14.0	13.0
27	12.0	11.0	21.0	19.5	23.5	21.5	23.5	23.0	---	---	13.5	12.5
28	13.5	11.5	21.0	19.5	24.5	22.5	23.0	22.0	---	---	13.5	12.0
29	14.5	13.0	21.0	19.5	24.5	24.0	22.5	21.5	---	---	13.0	12.5
30	14.5	13.5	20.0	18.5	24.0	23.0	21.5	20.5	---	---	13.0	11.5
31	---	---	18.5	15.5	---	---	21.5	20.5	---	---	---	---
MONTH	14.5	1.0	21.5	11.0	24.5	14.0	26.0	20.5	23.5	18.5	14.0	11.5

05120200 WINTERING RIVER NEAR BERGEN, ND

LOCATION.--Lat 47°55'50", long 100°40'15", on west line of sec.4, T.151 N., R.78 W., McHenry County, Hydrologic Unit 09010003, on left bank, and 6 mi (10 km) southeast of Bergen.

DRAINAGE AREA.--176 mi² (456 km²), of which about 50 mi² (130 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to September 1978 (discontinued).

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,587.91 ft (483.995 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Some regulation by Fish and Wildlife Service dams on Cottonwood and Wintering Lakes; controlled capacity, about 850 acre-ft (1.05 hm³).

AVERAGE DISCHARGE.--22 years, 6.32 ft³/s (0.179 m³/s), 4,580 acre-ft/yr (5.65 hm³/yr); median of yearly mean discharges, 5.9 ft³/s (0.17 m³/s), 4,300 acre-ft/yr (5.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s (25.5 m³/s) Apr. 10, 1969, gage height, 5.90 ft (1.798 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 450 ft³/s (12.7 m³/s) Mar. 22, gage height, 4.93 ft (1.503 m), backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	65	1.8	4.9	9.7	.00	.00
2	.00	.00	.00	.00	.00	.00	49	1.4	9.7	6.7	.00	.00
3	.00	.00	.00	.00	.00	.00	45	1.1	19	3.8	.00	.00
4	.00	.00	.00	.00	.00	.00	40	.88	16	2.7	.00	.00
5	.11	.00	.00	.00	.00	.00	42	.73	9.7	2.4	.00	.00
6	.11	.00	.00	.00	.00	.00	31	.65	5.7	2.1	.00	.00
7	.17	.00	.00	.00	.00	.00	27	.65	3.7	2.4	.00	.00
8	.43	.00	.00	.00	.00	.00	30	.88	2.5	5.1	.00	.00
9	.47	.00	.00	.00	.00	.00	25	1.3	1.5	11	.00	.00
10	.43	.00	.00	.00	.00	.00	17	1.8	1.1	16	.00	.00
11	.39	.00	.00	.00	.00	.00	13	1.8	.63	42	.00	.00
12	.35	.00	.00	.00	.00	.00	12	2.1	.78	50	.00	.00
13	.30	.00	.00	.00	.00	.00	8.6	2.0	.59	36	.00	.00
14	.25	.00	.00	.00	.00	.00	9.3	1.4	.47	24	.00	.00
15	.20	.00	.00	.00	.00	.00	8.8	1.0	.43	14	.00	.00
16	.16	.00	.00	.00	.00	.00	7.3	.73	.35	8.6	.00	.00
17	.13	.00	.00	.00	.00	.00	8.6	.59	.23	5.7	.00	.00
18	.10	.00	.00	.00	.00	.00	8.6	.35	.17	5.0	.00	.00
19	.08	.00	.00	.00	.00	.00	5.7	.27	.11	4.5	.00	.00
20	.06	.00	.00	.00	.00	5.0	3.8	.23	.08	4.0	.00	.00
21	.05	.00	.00	.00	.00	100	3.4	.17	.03	3.0	.00	.00
22	.04	.00	.00	.00	.00	350	4.2	.14	.00	2.0	.00	.00
23	.03	.00	.00	.00	.00	270	4.3	.11	.00	1.3	.00	.00
24	.02	.00	.00	.00	.00	280	4.5	.05	.00	.80	.00	.00
25	.01	.00	.00	.00	.00	350	4.2	.88	.00	.50	.00	.00
26	.00	.00	.00	.00	.00	260	3.5	.78	.04	.30	.00	.00
27	.00	.00	.00	.00	.00	190	3.3	.35	2.7	.18	.00	.00
28	.00	.00	.00	.00	.00	143	2.9	7.3	5.1	.10	.00	.00
29	.00	.00	.00	.00	---	111	2.4	6.5	9.3	.06	.00	.00
30	.00	.00	.00	.00	---	85	2.0	3.8	11	.03	.00	.00
31	.00	---	.00	.00	---	68	---	3.5	---	.01	.00	---
TOTAL	3.89	.00	.00	.00	.00	2212.00	489.2	45.20	106.01	263.98	.00	.00
MEAN	.13	.000	.000	.000	.000	71.4	16.3	1.46	3.53	8.52	.000	.000
MAX	.47	.00	.00	.00	.00	350	65	7.3	19	50	.00	.00
MIN	.00	.00	.00	.00	.00	.00	2.0	.05	.00	.01	.00	.00
AC-FT	7.7	.00	.00	.00	.00	4390	970	90	210	524	.00	.00

CAL YR 1977 TOTAL 3.89 MEAN .011 MAX .47 MIN .00 AC-FT 7.7
WTR YR 1978 TOTAL 3120.28 MEAN 8.55 MAX 350 MIN .00 AC-FT 6190

05120200 WINTERING RIVER NEAR BERGEN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957-64, 1972 to September 1978 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT									
06...	1145	.10	635	7.7	7.5	240	140	0	29
APR									
03...	1645	46	640	8.0	4.0	110	120	0	25
MAY									
01...	1730	1.7	1540	8.6	19.0	150	270	0	51
30...	1715	3.5	1090	8.0	18.0	120	240	0	47
JUN									
27...	1440	3.6	1530	8.3	25.0	180	250	0	46
AUG									
02...	1245	<.01	1500	8.8	20.5	240	220	0	34

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
06...	17	120	60	4.4	25	260	0	210	8.3
APR									
03...	14	92	61	3.7	7.9	210	0	170	3.4
MAY									
01...	34	230	64	6.1	15	460	9	390	1.9
30...	29	180	61	5.1	13	320	0	260	5.1
JUN									
27...	32	310	73	8.6	1.1	640	0	530	5.1
AUG									
02...	32	300	74	8.9	13	800	0	660	2.0

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT									
06...	180	34	.1	18	586	553	.80	.16	.02
APR									
03...	140	9.1	.1	14	433	407	.59	53.8	.03
MAY									
01...	330	22	.2	12	973	931	1.32	4.47	.08
30...	310	8.6	.2	14	798	760	1.09	7.54	.01
JUN									
27...	290	37	.2	5.9	1120	1040	1.52	10.9	.01
AUG									
02...	170	32	.2	8.6	1060	985	1.44	--	.05

05120200 WINTERING RIVER NEAR BERGEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
06...	.08	140	18	100	540	0	0	0	3
APR									
03...	.14	0	2	100	250	1	0	3	2
MAY									
01...	.29	--	--	--	530	--	--	--	--
30...	.44	--	--	--	440	--	--	--	--
JUN									
27...	.83	--	--	--	840	--	--	--	--
AUG									
02...	1.2	--	--	--	930	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
06...	270	0	40	10	.0	1	3	0	190	.8	30	.00
APR												
03...	120	--	30	0	.0	1	4	0	200	2.0	10	.00

05120500 WINTERING RIVER NEAR KARLSRUHE, ND

LOCATION.--Lat 48°10'14", long 100°32'20", on line between secs.10 and 11, T.154 N., R.77 W., McHenry County, Hydrologic Unit 09010003, on left bank 30 ft (9 m) upstream from county highway bridge, 4 mi (6 km) upstream from mouth, and 7 mi (11 km) northeast of Karlsruhe.

DRAINAGE AREA.--705 mi² (1,826 km²), of which about 420 mi² (1,090 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,480 ft (451 m), from river-profile map.

REMARKS.--Records fair. Some regulation by Fish and Wildlife Service dams on Cottonwood and Wintering Lakes; controlled capacity, about 850 acre-ft (1.05 hm³).

AVERAGE DISCHARGE.--41 years, 12.6 ft³/s (0.357 m³/s), 9,130 acre-ft/yr (11.3 hm³/yr); median of yearly mean discharges, 11 ft³/s (0.31 m³/s), 8,000 acre-ft/yr (9.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Apr. 7, 1949, by velocity-area studies; maximum gage height, 12.0 ft (3.66 m) Apr. 7, 1949 (channel choked by packed snow); no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 300 ft³/s (8.50 m³/s) Mar. 29, gage height, 7.91 ft (2.411 m), backwater from ice; maximum gage height, 8.00 ft (2.438 m) Mar. 25, backwater from ice; no flow Dec. 11 to Mar. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	2.8	.70	.00	.00	.00	230	17	21	8.6	3.0	.45
2	3.6	2.7	.60	.00	.00	.00	209	16	21	8.3	2.8	.40
3	3.6	2.7	.50	.00	.00	.00	174	15	20	8.0	2.7	.35
4	3.5	2.7	.40	.00	.00	.00	180	15	20	8.0	2.6	.30
5	3.5	2.6	.30	.00	.00	.00	154	14	19	8.2	2.5	.27
6	3.5	2.6	.20	.00	.00	.00	141	14	18	8.0	2.4	.25
7	3.4	2.6	.15	.00	.00	.00	112	14	16	7.7	2.3	.22
8	3.6	2.6	.10	.00	.00	.00	93	19	15	7.4	2.2	.22
9	3.6	2.6	.05	.00	.00	.00	89	20	15	7.1	2.1	.22
10	3.5	2.6	.02	.00	.00	.00	70	18	15	6.8	2.0	.22
11	3.5	2.5	.00	.00	.00	.00	56	16	15	6.5	1.9	.22
12	3.4	2.5	.00	.00	.00	.00	55	15	16	6.6	1.8	.50
13	3.4	2.5	.00	.00	.00	.00	47	15	16	6.4	1.7	.65
14	3.3	2.5	.00	.00	.00	.00	40	14	15	6.1	1.6	.70
15	3.3	2.5	.00	.00	.00	.00	40	13	16	5.9	1.5	.75
16	3.3	2.4	.00	.00	.00	.00	38	13	16	5.6	1.4	.75
17	3.2	2.4	.00	.00	.00	.00	36	13	15	5.3	1.3	.75
18	3.2	2.4	.00	.00	.00	.00	37	13	14	5.2	1.2	.75
19	3.2	2.4	.00	.00	.00	.20	35	14	13	5.0	1.1	.75
20	3.1	2.4	.00	.00	.00	1.0	32	14	12	5.2	1.0	.75
21	3.1	2.0	.00	.00	.00	2.0	30	14	12	5.0	.90	.80
22	3.1	1.6	.00	.00	.00	4.0	28	13	11	4.8	.80	.80
23	3.1	1.4	.00	.00	.00	7.0	27	13	11	4.8	.70	.80
24	3.0	1.2	.00	.00	.00	10	26	13	11	4.6	.60	.80
25	3.0	1.0	.00	.00	.00	15	24	13	9.8	4.4	.55	.80
26	3.0	.90	.00	.00	.00	20	23	13	9.7	4.2	.55	.85
27	3.0	.80	.00	.00	.00	30	21	13	9.5	4.0	.70	.85
28	2.9	.80	.00	.00	.00	70	20	13	9.0	3.8	.65	.85
29	2.9	.80	.00	.00	---	240	19	13	8.8	3.6	.60	.90
30	2.9	.80	.00	.00	---	280	18	13	8.8	3.4	.55	.90
31	2.9	---	.00	.00	---	250	---	18	---	3.2	.50	---
TOTAL	101.3	62.30	3.02	.00	.00	929.20	2104	451	428.6	181.7	46.20	17.82
MEAN	3.27	2.08	.097	.000	.000	30.0	70.1	14.5	14.3	5.86	1.49	.59
MAX	3.7	2.8	.70	.00	.00	280	230	20	21	8.6	3.0	.90
MIN	2.9	.80	.00	.00	.00	.00	18	13	8.8	3.2	.50	.22
AC-FT	201	124	6.0	.00	.00	1840	4170	895	850	360	92	35

CAL YR 1977 TOTAL 1105.28 MEAN 3.03 MAX 13 MIN .00 AC-FT 2190
WTR YR 1978 TOTAL 4325.14 MEAN 11.8 MAX 280 MIN .00 AC-FT 8580

05120500 WINTERING RIVER NEAR KARLSRUHE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-56, 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT									
06...	1605	3.5	670	8.2	9.5	28	290	0	65
NOV									
02...	1240	2.7	645	8.2	7.0	12	280	0	66
30...	1440	.80	710	7.5	.0	10	350	0	85
APR									
05...	1400	151	460	--	7.0	--	--	--	--
11...	1430	58	545	8.1	4.5	90	130	0	30
MAY									
01...	2015	17	770	8.1	15.5	75	200	0	44
JUN									
05...	1630	19	1050	8.2	21.0	110	260	0	53
27...	1620	9.4	935	8.0	24.5	120	210	0	43
AUG									
02...	1645	2.8	870	8.3	19.5	80	220	0	45
SEP									
06...	2055	.25	620	8.1	21.5	33	230	0	49

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
06...	32	49	26	1.2	4.7	400	0	330	4.0
NOV									
02...	29	37	22	1.0	3.7	390	0	320	3.9
30...	33	36	18	.8	3.5	450	0	370	23
APR									
05...	--	--	--	--	--	--	--	--	--
11...	14	74	53	2.8	8.1	220	0	180	2.8
MAY									
01...	23	98	50	3.0	8.1	360	0	300	4.6
JUN									
05...	30	170	58	4.6	7.3	520	0	430	5.2
27...	25	160	61	4.8	6.8	510	0	420	8.2
AUG									
02...	26	130	56	3.8	5.6	510	0	420	4.1
SEP									
06...	27	63	36	1.8	4.1	380	0	310	4.8

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT									
06...	50	9.5	.2	19	421	428	.57	3.98	.03
NOV									
02...	48	7.9	.1	15	390	399	.53	2.84	.01
30...	36	7.5	.2	25	458	449	.62	.99	.09
APR									
05...	--	--	--	--	--	--	--	--	--
11...	98	8.7	.1	16	365	358	.50	57.2	.04
MAY									
01...	110	13	.1	13	520	487	.71	23.9	.01
JUN									
05...	160	17	.2	10	712	704	.97	36.5	.02
27...	92	21	.2	19	655	619	.89	16.6	.05
AUG									
02...	65	13	.2	16	595	553	.81	4.50	.01
SEP									
06...	36	8.0	.1	15	378	390	.51	.26	.03

05120500 WINTERING RIVER NEAR KARLSRUHE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
06...	.04	20	1	300	130	0	0	0	0
NOV									
02...	.02	--	--	--	120	--	--	--	--
30...	.01	--	--	--	110	--	--	--	--
APR									
11...	.08	30	3	0	230	0	0	0	0
MAY									
01...	.08	--	--	--	270	--	--	--	--
JUN									
05...	.14	--	--	--	390	--	--	--	--
27...	.32	--	--	--	420	--	--	--	--
AUG									
02...	.17	--	--	--	330	--	--	--	--
SEP									
06...	.06	--	--	--	150	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
06...	40	0	30	30	.0	0	1	0	220	.0	20	.01
APR												
11...	330	4	30	30	.0	0	15	1	150	1.0	0	.00

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT										
06...	14	.13	2	7	30	63	87	93	97	100
NOV										
30...	6	.01	--	--	--	--	--	--	--	--
APR										
11...	6	.94	6	8	34	84	95	97	99	100
MAY										
01...	4	.18	--	--	--	--	--	--	--	--
JUN										
05...	3	.15	--	--	--	--	--	--	--	--
27...	6	.15	--	--	--	--	--	--	--	--
AUG										
02...	5	.04	--	--	--	--	--	--	--	--
SEP										
06...	6	.00	--	--	--	--	--	--	--	--

05122000 SOURIS (MOUSE) RIVER NEAR BANTRY, ND

LOCATION.--Lat 48°30'20", long 100°26'04", in SE¼NW¼SE¼ sec.14, T.158 N., R.76 W., McHenry County, Hydrologic Unit 09010003, on left bank 200 ft (61 m) upstream from Nelson bridge, 8 mi (13 km) east of Bantry, 18 mi (29 km) upstream from Willow Creek, and at mile 228.0 (366.9 km).

DRAINAGE AREA.--12,300 mi^2 (31,900 km^2), approximately, of which about 7,600 mi^2 (19,700 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 2113: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,427.56 ft (435.120 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 16, 1938, nonrecording gage at same site at datum 0.17 ft (0.052 m) lower.

REMARKS.--Records fair. Flow regulated by reservoirs on Souris, Des Lacs, and Wintering Rivers, total capacity, about 249,000 acre-ft (307 km). Diversions for irrigation of about 7,600 acres (30.8 km^2) at Eaton Dam about 42 mi (68 km) above station and other small diversions for irrigation and municipal supply.

AVERAGE DISCHARGE.--41 years, 230 ft^3/s (6.514 m^3/s), 166,600 acre-ft/yr (205 hm^3/yr); median of yearly mean discharges, 140 ft^3/s (3.96 m^3/s), 101,000 acre-ft/yr (120 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,330 ft^3/s (264 m^3/s) Apr. 23, 1976, gage height, 14.59 ft (4.447 m); no flow at times each year 1937-40, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 908 ft^3/s (25.7 m^3/s) Apr. 7, gage height, 9.94 ft (3.030 m); maximum gage height, 10.43 ft (3.179 m) Mar. 30, backwater from ice; minimum daily discharge, 10 ft^3/s (0.28 m^3/s) Feb. 5 to Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	32	16	17	12	10	550	359	160	139	342	170
2	39	32	16	17	11	10	600	354	165	147	341	180
3	43	31	16	17	11	10	650	340	175	166	338	180
4	45	29	15	17	11	10	700	325	190	189	337	160
5	42	29	15	17	10	10	800	305	205	202	337	140
6	40	28	14	17	10	10	872	290	220	195	337	125
7	38	28	14	17	10	10	888	280	230	176	337	115
8	39	27	14	17	10	10	890	285	225	164	336	110
9	39	27	14	17	10	10	819	315	215	161	336	107
10	37	26	14	17	10	11	740	420	205	163	338	103
11	35	26	14	16	10	12	675	500	190	160	339	98
12	34	25	14	16	10	13	621	520	180	158	339	99
13	34	25	14	16	10	13	593	490	170	149	339	96
14	33	24	15	16	10	14	554	430	163	139	339	91
15	33	24	15	16	10	14	514	370	159	130	339	83
16	34	23	16	15	10	15	479	320	157	122	339	75
17	34	23	16	15	10	15	452	290	154	118	340	68
18	34	22	17	15	10	16	432	260	150	121	340	68
19	34	21	17	15	10	17	408	230	151	121	335	81
20	33	20	17	14	10	17	385	210	154	125	335	86
21	32	19	17	14	10	19	369	195	159	130	335	88
22	32	18	17	14	10	20	352	180	164	124	320	88
23	33	17	17	14	10	21	340	170	170	129	290	86
24	33	16	17	14	10	22	326	150	165	133	250	83
25	31	15	17	14	10	24	312	140	165	136	224	80
26	30	15	17	14	10	26	301	145	166	147	210	78
27	29	15	17	13	10	100	304	155	166	183	200	75
28	29	16	17	13	10	200	336	165	158	253	191	74
29	29	16	17	13	---	350	351	170	149	300	180	71
30	29	16	17	12	---	400	356	165	142	325	170	65
31	31	---	17	12	---	450	---	160	---	338	160	---
TOTAL	1070	685	490	471	285	1879	15969	8688	5222	5243	9293	3023
MEAN	34.5	22.8	15.8	15.2	10.2	60.6	532	280	174	169	300	101
MAX	45	32	17	17	12	450	890	520	230	338	342	180
MIN	29	15	14	12	10	10	301	140	142	118	160	65
AC-FT	2120	1360	972	934	565	3730	31670	17230	10360	10400	18430	6000

CAL YR 1977 TOTAL 15341.6 MEAN 42.0 MAX 473 MIN 3.0 AC-FT 30430
WTR YR 1978 TOTAL 52318.0 MEAN 143 MAX 890 MIN 10 AC-FT 103800

05122000 SOURIS RIVER NEAR BANTRY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
05...	1600	41	1020	8.5	9.5	--	340	0	72
NOV									
11...	1145	26	1120	8.5	.0	--	360	1	90
DEC									
01...	1050	16	1330	8.0	.0	--	400	0	98
JAN									
13...	1630	16	1500	7.5	.0	--	510	83	110
13...	1631	16	1500	7.5	.0	--	490	73	100
FEB									
08...	1505	10	1600	7.5	.0	--	490	8	100
MAR									
08...	1440	10	1570	7.4	.0	--	500	14	110
29...	1430	360	480	--	.0	--	--	--	--
APR									
04...	1200	718	380	--	1.5	--	--	--	--
07...	1905	915	460	--	1.0	--	--	--	--
12...	1930	610	500	8.0	4.5	--	150	15	35
MAY									
03...	1515	350	710	8.3	15.5	--	230	24	52
JUN									
05...	2030	206	1120	8.3	20.5	--	390	69	78
28...	2215	150	1020	8.0	25.0	--	270	0	55
AUG									
03...	1715	340	890	8.2	20.0	20	250	0	47
03...	1716	340	890	8.2	20.0	--	250	0	47
SEP									
09...	1400	110	870	8.2	21.5	--	270	7	57

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
05...	39	110	41	2.6	7.0	395	12	344	2.1
NOV									
11...	33	130	43	3.0	7.7	410	14	360	2.2
DEC									
01...	38	160	46	3.5	9.2	487	11	418	8.1
JAN									
13...	57	160	40	3.1	12	520	0	430	26
13...	58	160	41	3.2	13	507	0	416	26
FEB									
08...	58	190	45	3.7	13	586	0	481	30
MAR									
08...	55	180	43	3.5	11	594	0	487	38
29...	--	--	--	--	--	--	--	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
12...	15	45	38	1.6	7.1	163	0	134	2.6
MAY									
03...	24	65	37	1.9	7.4	250	0	205	2.0
JUN									
05...	47	120	40	2.7	9.1	389	0	319	3.1
28...	33	130	50	3.5	9.9	370	0	303	5.9
AUG									
03...	33	110	47	3.0	13	320	0	260	3.2
03...	32	110	48	3.0	11	331	0	271	3.3
SEP									
09...	31	92	41	2.4	12	321	0	263	3.2

05122000 SOURIS RIVER NEAR BANTRY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT									
05...	190	28	.1	11	693	664	.94	76.7	--
NOV									
11...	220	45	.5	8.3	718	751	.98	51.0	--
DEC									
01...	250	66	.5	10	873	883	1.19	37.7	--
JAN									
13...	350	55	.4	21	1030	1030	1.40	44.5	.43
13...	340	53	.3	12	1070	987	1.46	46.2	--
FEB									
08...	310	92	.5	27	1130	1080	1.54	30.5	--
MAR									
08...	300	73	.5	25	1060	1050	1.44	28.6	--
29...	--	--	--	--	--	--	--	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
12...	100	8.9	.1	14	347	306	.47	572	--
MAY									
03...	160	11	.1	11	473	454	.64	447	--
JUN									
05...	290	23	.2	10	777	770	1.06	432	--
28...	190	43	.3	11	675	653	.92	273	--
AUG									
03...	180	45	.3	10	585	599	.80	537	.18
03...	170	35	.3	9.5	586	578	.80	538	--
SEP									
09...	180	27	.2	5.7	595	563	.81	177	--

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	BORON, DISSOLVED (UG/L AS B) (01020)
OCT				
05...	--	--	--	330
NOV				
11...	--	--	--	330
DEC				
01...	--	--	--	520
JAN				
13...	--	.16	.49	280
13...	--	--	--	380
FEB				
08...	--	--	--	290
MAR				
08...	--	--	--	1600
APR				
12...	--	--	--	320
MAY				
03...	--	--	--	150
JUN				
05...	--	--	--	690
28...	--	--	--	290
AUG				
03...	.68	.68	2.1	230
03...	--	--	--	0
SEP				
09...	--	--	--	30

05123000 LAKE METIGOSHE NEAR BOTTINEAU, ND

LOCATION.--Lat 48°59'05", long 100°20'52", in SE¼SW¼ sec.35, T.164 N., R.75 W., Bottineau County, Hydrologic Unit 09010004, 25 ft (7.6 m) east from northeast corner of bridge over Lake Metigoshe, and 11.7 mi (18.8 km) northeast of Bottineau.

DRAINAGE AREA.--59 mi^2 (153 km^2).

PERIOD OF RECORD.--June 1931 to September 1932, September 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,130.00 ft (649.224 m) National Geodetic Vertical Datum of 1929. 1931-32, nonrecording gage on north abutment of bridge at datum 6.32 ft (1.93 m) lower (reduced to elevations NGVD). Sept. 4, 1953, to Jan. 19, 1955, nonrecording gage at present datum on east end of south abutment of bridge.

REMARKS.--Outlet of lake is a concrete dam with removable stoplogs; average crest elevation without stoplogs about 2,138.0 ft (651.66 m) National Geodetic Vertical Datum of 1929. Lake level regulated since 1959 by dam and control works in the outlet of Sharpe Lake located on the principal tributary in Manitoba.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 9.70 ft (2.957 m) May 3, 1975; minimum, 4.28 ft (1.305 m) Sept. 17, 1932, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 7.75 ft (2.362 m) May 26; minimum gage height, 6.84 ft (2.085 m) Sept. 28.

MONTHEND GAGE HEIGHT, IN FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Oct. 31--------	7.21	Jan. 31--------	*7.36	Apr. 30--------	7.61	July 31--------	7.28
Nov. 30--------	*7.21	Feb. 28--------	*7.38	May 31--------	7.71	Aug. 31--------	7.04
Dec. 31--------	*7.34	Mar. 31--------	7.42	June 30--------	7.40	Sept. 30--------	6.85

* Estimated.

05123100 OAK CREEK AT LAKE METIGOSHE OUTLET NEAR BOTTINEAU, ND

LOCATION.--Lat 48°57'56", long 100°21'47", in SE¼SE¼ sec.3, T.163 N., R.75 W., Bottineau County, Hydrologic Unit 09010004, at outlet of Lake Metigoshe, and 10 mi (16 km) northeast of Bottineau.

DRAINAGE AREA.--59 mi² (153 km²).

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder and concrete control with stoplogs. Datum of gage is 2,130.00 ft (649.224 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1955, nonrecording gage at same site and datum. Gage is located 1.5 mi (2.4 km) northeast of outlet of lake, and is same as that used for station on Lake Metigoshe.

REMARKS.--No flow all year. Flow regulated since 1959 by dam and control works on the outlet of Sharpe Lake located on the principal tributary in Manitoba.

AVERAGE DISCHARGE.--25 years, 4.63 ft³/s (0.131 m³/s), 3,350 acre-ft/yr (4.13 hm³/yr); median of yearly mean discharges, 1.9 ft³/s (0.054 m³/s), 1,400 acre-ft/yr (1.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 148 ft³/s (4.19 m³/s) May 3, 1975, gage height, 9.70 ft (2.957 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--No flow all year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1978 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00

05123400 WILLOW CREEK NEAR WILLOW CITY, ND

LOCATION.--Lat 48°35'20", long 100°26'30", in NE¼NW¼ sec.23, T.159 N., R.76 W., McHenry County, Hydrologic Unit 09010004, on left bank 50 ft (15 m) downstream from bridge on county road, 1.5 mi (2.4 km) upstream from Snake Creek, and 7 mi (11 km) west of Willow City.

DRAINAGE AREA.--1,160 mi^2 (3,000 km^2), approximately, of which about 430 mi^2 (1,110 km^2) is probably noncontributing.

PERIOD OF RECORD.--August 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,430 ft (436 m), from topographic map. Prior to Oct. 5, 1956, nonrecording gage at site 50 ft (15 m) upstream at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--22 years, 47.7 ft^3/s (1.351 m^3/s), 34,560 acre-ft/yr (42.6 hm^3/yr); median of yearly mean discharges, 16 ft^3/s (0.45 m^3/s), 11,600 acre-ft/yr (14 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,900 ft^3/s (167 m^3/s) Apr. 12, 1969, gage height, 16.76 ft (5.108 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 450 ft^3/s (12.7 m^3/s) Apr. 8, gage height, 10.69 ft (3.258 m), backwater from ice; only peak above base of 50 ft^3/s (1.42 m^3/s); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	32	8.0	.30	.65	.00
2	.00	.00	.00	.00	.00	.00	.00	27	15	.35	.60	.00
3	.00	.00	.00	.00	.00	.00	10	24	15	.35	.50	.00
4	.00	.00	.00	.00	.00	.00	170	21	14	2.0	.45	.00
5	.00	.00	.00	.00	.00	.00	300	19	13	5.0	.45	.00
6	.00	.00	.00	.00	.00	.00	360	16	12	3.0	.40	.00
7	.00	.00	.00	.00	.00	.00	410	14	11	2.5	.40	.00
8	.00	.00	.00	.00	.00	.00	440	16	10	2.5	.35	.00
9	.00	.00	.00	.00	.00	.00	435	16	9.0	2.0	.30	.00
10	.00	.00	.00	.00	.00	.00	430	15	8.0	1.8	.30	.00
11	.00	.00	.00	.00	.00	.00	357	15	7.0	1.4	.30	.00
12	.00	.00	.00	.00	.00	.00	289	14	6.0	2.0	.25	.00
13	.00	.00	.00	.00	.00	.00	227	13	5.5	1.8	.20	.00
14	.00	.00	.00	.00	.00	.00	177	12	5.0	1.4	.20	.00
15	.00	.00	.00	.00	.00	.00	142	12	4.5	1.2	.20	.00
16	.00	.00	.00	.00	.00	.00	130	11	4.0	1.2	.15	.00
17	.00	.00	.00	.00	.00	.00	131	10	3.0	1.0	.15	.00
18	.00	.00	.00	.00	.00	.00	128	10	2.5	1.0	.10	.00
19	.00	.00	.00	.00	.00	.00	120	9.9	2.0	1.0	.05	.00
20	.00	.00	.00	.00	.00	.00	106	8.4	1.5	.95	.02	.00
21	.00	.00	.00	.00	.00	.00	95	7.7	1.0	.95	.00	.00
22	.00	.00	.00	.00	.00	.00	83	7.0	.70	1.1	.00	.00
23	.00	.00	.00	.00	.00	.00	74	7.0	.50	1.3	.00	.00
24	.00	.00	.00	.00	.00	.00	69	6.8	.30	1.3	.00	.00
25	.00	.00	.00	.00	.00	.00	64	6.5	.50	1.2	.02	.00
26	.00	.00	.00	.00	.00	.00	60	6.2	.70	1.1	.07	.00
27	.00	.00	.00	.00	.00	.00	54	6.0	.70	.90	.07	.00
28	.00	.00	.00	.00	.00	.00	49	6.0	.50	.80	.05	.00
29	.00	.00	.00	.00	---	.00	42	6.0	.40	.80	.03	.00
30	.00	.00	.00	.00	---	.00	37	5.8	.30	.80	.02	.00
31	.00	---	.00	.00	---	.00	---	5.8	---	.75	.01	---
TOTAL	.00	.00	.00	.00	.00	.00	4989.00	386.1	161.60	43.75	6.29	.00
MEAN	.000	.000	.000	.000	.000	.000	166	12.5	5.39	1.41	.20	.000
MAX	.00	.00	.00	.00	.00	.00	440	32	15	5.0	.65	.00
MIN	.00	.00	.00	.00	.00	.00	.00	5.8	.30	.30	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	9900	766	321	87	12	.00

CAL YR 1977 TOTAL 893.63 MEAN 2.45 MAX 108 MIN .00 AC-FT 1770
WTR YR 1978 TOTAL 5586.74 MEAN 15.3 MAX 440 MIN .00 AC-FT 11080

05123510 DEEP RIVER NEAR UPHAM, ND

LOCATION.--Lat 48°35'03", long 100°51'44", in SW¼NW¼ sec.22, T.159 N., R.79 W., McHenry County, Hydrologic Unit 09010005, 60 ft (18 m) downstream from county highway bridge, 0.8 mi (1.3 km) downstream from Little Deep River, and 6.3 mi (10.1 km) west of Upham.

DRAINAGE AREA.--975 mi² (2,525 km²), of which 605 mi² (1,567 km²) is probably noncontributing.

PERIOD OF RECORD.--September 1957 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,430 ft (436 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--21 years, 19.9 ft³/s (0.564 m³/s), 14,420 acre-ft/yr (17.8 hm³/yr); median of yearly mean discharges, 0.9 ft³/s (0.025 m³/s), 650 acre-ft/yr (0.80 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,760 ft³/s (191 m³/s) Apr. 12, 1969, gage height, 18.18 ft (5.541 m); no flow for part or all of each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1951 reached a stage of about 16 ft (4.88 m), discharge, 2,700 ft³/s (76.5 m³/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 102 ft³/s (2.89 m³/s) Apr. 6, gage height, 7.89 ft (2.405 m), only peak above base of 50 ft³/s (1.42 m³/s); maximum gage height, 8.63 ft (2.630 m) April 1, backwater from ice and snow; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	10	7.0	.30	.03	.00	.00
2	.00	.00	.00	.00	.00	.00	10	6.0	.25	.02	.00	.00
3	.00	.00	.00	.00	.00	.00	5.0	5.0	.25	.02	.00	.00
4	.00	.00	.00	.00	.00	.00	3.0	4.2	.20	.02	.00	.00
5	.00	.00	.00	.00	.00	.00	60	3.5	.15	.02	.00	.00
6	.00	.00	.00	.00	.00	.00	98	3.0	.08	.02	.00	.00
7	.00	.00	.00	.00	.00	.00	69	3.0	.05	.01	.00	.00
8	.00	.00	.00	.00	.00	.00	52	3.9	.10	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	42	4.0	.15	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	34	3.6	.20	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	29	3.5	.15	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	24	4.0	.15	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	20	4.0	.10	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	18	3.8	.08	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	17	3.4	.08	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	16	2.8	.06	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	14	2.6	.04	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	12	2.3	.03	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	11	2.1	.02	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	9.4	2.1	.01	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	8.3	2.0	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	7.9	1.5	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	7.4	1.1	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	6.8	.65	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	6.2	.35	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	5.6	.30	.04	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	5.2	.25	.06	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	8.8	.20	.05	.00	.00	.00
29	.00	.00	.00	.00	---	.00	8.5	.15	.03	.00	.00	.00
30	.00	.00	.00	.00	---	.00	7.9	.12	.03	.00	.00	.00
31	.00	---	.00	.00	---	4.0	---	.20	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	4.00	626.0	80.62	2.66	.14	.00	.00
MEAN	.000	.000	.000	.000	.000	.13	20.9	2.60	.089	.005	.000	.000
MAX	.00	.00	.00	.00	.00	4.0	98	7.0	.30	.03	.00	.00
MIN	.00	.00	.00	.00	.00	.00	3.0	.12	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	7.9	1240	160	5.3	.3	.00	.00

CAL YR 1977 TOTAL 5.79 MEAN .016 MAX .40 MIN .00 AC-FT 11
WTR YR 1978 TOTAL 713.42 MEAN 1.95 MAX 98 MIN .00 AC-FT 1420

05123600 EGG CREEK NEAR GRANVILLE, ND

LOCATION.--Lat 48°21'18", long 100°49'19", on west line of sec.10, T.156 N., R.79 W., McHenry County, Hydrologic Unit 09010005, on right bank, near right downstream wingwall of bridge, 2 mi (3 km) downstream from Hay Coulee, 3.5 mi (5.6 km) upstream from North Lake, and 6 mi (10 km) northeast of Granville.

DRAINAGE AREA.--289 mi² (749 km²), of which 150 mi² (388 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSF 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,478.14 ft (450.537 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

AVERAGE DISCHARGE.--22 years, 6.16 ft³/s (0.174 m³/s), 4,460 acre-ft/yr (5.50 hm³/yr); median of yearly mean discharges, 3.4 ft³/s (0.096 m³/s), 2,500 acre-ft/yr (3.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) Apr. 10, 1969, gage height, 7.28 ft (2.219 m); maximum gage height, 8.10 ft (2.469 m) Apr. 9, 1969, from floodmark, backwater from snow; no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 150 ft³/s (4.25 m³/s) Mar. 28, gage height, 5.2 ft (1.58 m), only peak above base of 20 ft³/s (0.57 m³/s); maximum gage height observed, 5.9 ft (1.80 m) Mar. 27, backwater from ice and snow; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	93	5.2	1.7	3.6	.40	.00
2	.00	.00	.00	.00	.00	.00	82	4.5	1.3	2.7	.20	.00
3	.00	.00	.00	.00	.00	.00	72	3.7	.90	1.4	.10	.00
4	.00	.00	.00	.00	.00	.00	63	3.3	.70	5.9	.08	.00
5	.00	.00	.00	.00	.00	.00	55	2.4	.60	7.9	.06	.00
6	.00	.00	.00	.00	.00	.00	48	1.9	.50	4.5	.02	.00
7	.00	.00	.00	.00	.00	.00	40	1.7	.40	2.6	.01	.00
8	.00	.00	.00	.00	.00	.00	32	4.1	.30	4.1	.01	.00
9	.00	.00	.00	.00	.00	.00	26	4.3	.30	6.1	.00	.00
10	.00	.00	.00	.00	.00	.00	21	4.0	.20	6.1	.00	.00
11	.00	.00	.00	.00	.00	.00	18	3.6	.20	5.9	.00	.00
12	.00	.00	.00	.00	.00	.00	15	3.3	.10	8.5	.00	.00
13	.00	.00	.00	.00	.00	.00	13	2.8	.10	6.5	.00	.00
14	.00	.00	.00	.00	.00	.00	12	2.8	.10	5.9	.00	.00
15	.00	.00	.00	.00	.00	.00	8.6	2.6	.10	5.1	.00	.00
16	.00	.00	.00	.00	.00	.00	7.4	2.1	.30	4.0	.00	.00
17	.00	.00	.00	.00	.00	.00	6.2	1.7	.60	4.5	.00	.00
18	.00	.00	.00	.00	.00	.00	6.5	1.4	.60	5.4	.00	.00
19	.00	.00	.00	.00	.00	.00	4.8	1.1	.50	5.8	.00	.00
20	.00	.00	.00	.00	.00	.00	4.8	1.0	.40	5.9	.00	.00
21	.00	.00	.00	.00	.00	.00	4.5	.96	.40	5.9	.00	.00
22	.00	.00	.00	.00	.00	.00	5.9	.88	.40	5.9	.00	.00
23	.00	.00	.00	.00	.00	.00	8.6	.71	.30	7.6	.00	.00
24	.00	.00	.00	.00	.00	.00	9.6	.60	.30	6.8	.00	.00
25	.00	.00	.00	.00	.00	.00	9.8	.50	.20	5.5	.00	.00
26	.00	.00	.00	.00	.00	.00	9.0	.50	.50	3.7	.00	.00
27	.00	.00	.00	.00	.00	20	8.3	.40	2.4	2.0	.00	.00
28	.00	.00	.00	.00	.00	70	7.6	.30	2.4	1.7	.00	.00
29	.00	.00	.00	.00	---	130	6.8	.20	2.5	1.1	.00	.00
30	.00	.00	.00	.00	---	108	5.7	.20	3.0	.92	.00	.00
31	.00	---	.00	.00	---	98	---	.60	---	.62	.00	---
TOTAL	.00	.00	.00	.00	.00	426.00	704.1	63.35	22.30	143.74	.88	.00
MEAN	.000	.000	.000	.000	.000	13.7	23.5	2.04	.74	4.64	.028	.000
MAX	.00	.00	.00	.00	.00	130	93	5.2	3.0	8.5	.40	.00
MIN	.00	.00	.00	.00	.00	.00	4.5	.20	.10	.62	.00	.00
AC-FT	.00	.00	.00	.00	.00	845	1400	126	44	285	1.7	.00

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1978 TOTAL 1360.37 MEAN 3.73 MAX 130 MIN .00 AC-FT 2700

05123700 CUT BANK CREEK AT NORTH LAKE OUTLET NEAR GRANVILLE, ND

LOCATION.--Lat 48°23'10", long 100°46'00", on south line of sec.29, T.157 N., R.78 W., McHenry County, Hydrologic Unit 09010005, on left bank near left downstream wingwall of bridge, 9 mi (14 km) northeast of Granville, and 13.5 mi (21.7 km) east of Deering.

DRAINAGE AREA.--534 mi² (1,383 km²), of which 290 mi² (751 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,477.25 ft (450.266 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Natural control by North Lake.

AVERAGE DISCHARGE.--22 years, 5.57 ft³/s (0.158 m³/s), 4,040 acre-ft/yr (4.98 hm³/yr); median of yearly mean discharges, no flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 780 ft³/s (22.1 m³/s) Mar. 29, 1976, gage height, 4.60 ft (1.402 m); maximum gage height, 4.68 ft (1.427 m) Mar. 27, 1976, backwater from ice; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.1 ft³/s (0.173 m³/s) Apr. 17, gage height, 1.67 ft (0.509 m); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	4.7	.74	.92	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	4.9	1.4	.80	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	4.8	1.4	.62	.00	.00
4	.00	.00	.00	.00	.00	.00	.62	4.5	1.1	1.3	.00	.00
5	.00	.00	.00	.00	.00	.00	2.1	3.6	1.2	1.7	.00	.00
6	.00	.00	.00	.00	.00	.00	2.6	3.3	.86	1.3	.00	.00
7	.00	.00	.00	.00	.00	.00	3.0	3.6	.62	1.1	.00	.00
8	.00	.00	.00	.00	.00	.00	4.0	3.2	.62	1.0	.00	.00
9	.00	.00	.00	.00	.00	.00	4.2	4.3	.74	.80	.00	.00
10	.00	.00	.00	.00	.00	.00	4.3	4.3	.50	.62	.00	.00
11	.00	.00	.00	.00	.00	.00	5.3	4.0	.40	.56	.00	.00
12	.00	.00	.00	.00	.00	.00	4.5	3.9	.40	.80	.00	.00
13	.00	.00	.00	.00	.00	.00	4.9	3.8	.36	.47	.00	.00
14	.00	.00	.00	.00	.00	.00	5.4	4.3	.33	.36	.00	.00
15	.00	.00	.00	.00	.00	.00	5.5	4.5	.33	.19	.00	.00
16	.00	.00	.00	.00	.00	.00	5.7	4.3	.33	.08	.00	.00
17	.00	.00	.00	.00	.00	.00	5.9	3.2	.30	.03	.00	.00
18	.00	.00	.00	.00	.00	.00	4.2	2.4	.30	.08	.00	.00
19	.00	.00	.00	.00	.00	.00	3.8	1.8	.23	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	4.8	2.1	.13	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	5.3	2.3	.19	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	5.5	2.1	.19	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	4.9	2.0	.16	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	4.7	1.9	.14	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	5.2	1.5	.13	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	5.2	1.4	1.0	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	5.2	1.3	1.1	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	5.1	1.3	1.0	.00	.00	.00
29	.00	.00	.00	.00	---	.00	4.8	1.0	.98	.00	.00	.00
30	.00	.00	.00	.00	---	.00	4.7	.92	.92	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.68	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	121.42	91.90	18.10	12.65	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	4.05	2.96	.60	.41	.000	.000
MAX	.00	.00	.00	.00	.00	.00	5.9	4.9	1.4	1.7	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.68	.13	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	241	182	36	25	.00	.00

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1978 TOTAL 244.07 MEAN .67 MAX 5.9 MIN .00 AC-FT 484

05123750 CUT BANK CREEK AT UPHAM, ND

LOCATION.--Lat 48°34'29", long 100°44'39", in SE¼SE¼SW¼ sec.21, T.159 N., R.78 W., McHenry County, Hydrologic Unit 09010005, on left bank 50 ft (15 m) downstream from county highway bridge, and 0.5 mi (0.8 km) southwest of Upham.

DRAINAGE AREA.--722 mi^2 (1,870 km^2), of which about 450 mi^2 (1,166 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,422.77 ft (433.660 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 820 ft^3/s (23.2 m^3/s) Apr. 1, 1976, gage height, 7.24 ft (2.207 m), from high water mark; no flow for several months.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4.7 ft^3/s (0.13 m^3/s) Apr. 20, gage height, 1.75 ft (0.533 m); maximum gage height, 2.62 ft (0.799 m) April 8, backwater from snow; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	1.9	2.0	.22	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	1.7	1.9	.14	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	1.6	1.8	.08	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	1.6	1.7	.22	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	1.5	1.6	.37	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	1.4	1.6	.34	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	1.6	1.5	.22	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	2.3	1.4	.14	.00	.00
9	.00	.00	.00	.00	.00	.00	1.0	2.6	1.3	.10	.00	.00
10	.00	.00	.00	.00	.00	.00	1.5	2.7	1.3	.07	.00	.00
11	.00	.00	.00	.00	.00	.00	1.4	2.7	1.3	.03	.00	.00
12	.00	.00	.00	.00	.00	.00	1.2	2.7	1.3	.10	.00	.00
13	.00	.00	.00	.00	.00	.00	1.0	2.6	1.2	.08	.00	.00
14	.00	.00	.00	.00	.00	.00	.76	2.6	1.2	.06	.00	.00
15	.00	.00	.00	.00	.00	.00	.58	2.6	1.1	.03	.00	.00
16	.00	.00	.00	.00	.00	.00	.86	2.4	1.1	.02	.00	.00
17	.00	.00	.00	.00	.00	.00	2.4	2.4	.96	.01	.00	.00
18	.00	.00	.00	.00	.00	.00	3.4	2.4	.86	.01	.00	.00
19	.00	.00	.00	.00	.00	.00	4.2	2.4	.71	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	4.6	2.6	.62	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	4.4	2.5	.50	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	4.1	2.4	.37	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	4.0	2.4	.37	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	3.8	2.3	.25	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	3.4	2.1	.16	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	3.0	1.9	.43	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	2.8	1.7	.54	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	2.5	1.4	.43	.00	.00	.00
29	.00	.00	.00	.00	---	.00	2.3	1.2	.28	.00	.00	.00
30	.00	.00	.00	.00	---	.00	2.1	1.1	.25	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	1.6	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	55.30	64.9	30.03	2.24	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	1.84	2.09	1.00	.072	.000	.000
MAX	.00	.00	.00	.00	.00	.00	4.6	2.7	2.0	.37	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	1.1	.16	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	110	129	60	4.4	.00	.00

CAL YR 1977 TOTAL 31.25 MEAN .086 MAX 2.9 MIN .00 AC-FT 62
WTR YR 1978 TOTAL 152.47 MEAN .42 MAX 4.6 MIN .00 AC-FT 302

05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND

LOCATION.--Lat 48°36'14", long 100°47'41", in SW¼SW¼SW¼ sec.7, T.159 N., R.78 W., McHenry County, Hydrologic Unit 09010005, at bridge 0.5 mi (0.8 km) below Cut Bank Creek, and about 3.5 mi (5.6 km) northwest of Upham at bridge on county highway.

DRAINAGE AREA.--1,722 mi^2 (4,460 km^2), of which about 1,070 mi^2 (2,770 km^2) is probably noncontributing.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURE: October 1974 to current year.

REMARKS.--Discharge computed from records at stations 05123510 Deep River near Upham and 05123750 Cut Bank Creek at Upham. No flow Oct. 1, 1977 to Mar. 30, 1978; July 19 to Sept. 30, 1978.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Mar. 22, 1976; minimum daily, 278 micromhos Apr. 1, 1976.
WATER TEMPERATURE: Maximum daily, 28.0°C July 6, 1975; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
APR									
13...	1245	<26	530	8.1	1.0	55	210	120	45
MAY									
03...	1830	8.1	710	8.5	16.0	60	290	130	57
JUN									
06...	1545	1.7	800	8.9	18.5	33	340	130	60
29...	1500	.48	735	9.7	23.0	33	310	110	41

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
APR									
13...	24	27	21	.8	12	110	0	90	1.4
MAY									
03...	37	35	19	.9	16	200	0	160	1.0
JUN									
06...	46	48	23	1.1	14	210	22	210	.5
29...	50	53	26	1.3	13	160	43	200	.1

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
APR									
13...	130	50	.1	11	333	355	.45	--	.31
MAY									
03...	150	44	.1	12	463	450	.63	10.1	.02
JUN									
06...	190	32	.1	.6	544	516	.74	2.50	.02
29...	200	35	.1	4.2	514	518	.70	.67	.01

05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
APR									
13...	.18	0	4	0	80	0	0	0	0
MAY									
03...	.10	--	--	--	100	--	--	--	--
JUN									
06...	.07	--	--	--	150	--	--	--	--
29...	.20	--	--	--	140	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR												
13...	80	1	20	10	.0	0	0	0	170	.0	10	.00

05123760 DEEP RIVER BELOW CUT BANK CREEK NEAR UPHAM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	900	690	700			
2						---	---	660	760			
3						---	---	690	775			
4						---	800	690	800			
5						---	---	700	---			
6						---	---	720	---			
7						---	700	710	---			
8						---	700	---	---			
9						---	600	700	---			
10						---	550	720	775			
11						---	450	710	---			
12						---	440	720	---			
13						---	520	725	---			
14						---	540	710	---			
15						---	---	745	---			
16						---	---	760	---			
17						---	580	750	---			
18						---	500	750	---			
19						---	560	750	---			
20						---	560	750	---			
21						---	580	690	---			
22						---	625	790	---			
23						---	625	760	---			
24						---	640	760	---			
25						---	700	790	---			
26						---	645	760	725			
27						---	675	---	775			
28						---	700	---	---			
29						---	700	740	---			
30						---	700	800	---			
31						660	---	---	---			
MEAN						660	625	731	759			

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	---	16.0	12.5			
2						---	---	13.5	15.0			
3						---	---	15.5	18.0			
4						---	---	12.0	20.0			
5						---	---	14.0	---			
6						---	---	14.0	---			
7						---	4.0	14.0	---			
8						---	---	---	---			
9						---	5.0	13.0	---			
10						---	2.0	15.0	19.0			
11						---	3.0	16.0	---			
12						---	2.0	14.0	---			
13						---	3.0	16.0	---			
14						---	2.0	14.0	---			
15						---	---	18.0	---			
16						---	---	19.5	---			
17						---	5.0	21.0	---			
18						---	4.5	20.5	---			
19						---	4.0	16.0	---			
20						---	4.0	18.0	---			
21						---	5.5	20.0	---			
22						---	9.0	19.0	---			
23						---	8.0	22.5	---			
24						---	9.0	21.0	---			
25						---	11.0	20.5	---			
26						---	9.5	21.0	21.5			
27						---	14.0	---	22.0			
28						---	14.5	---	---			
29						---	15.0	20.0	---			
30						---	14.5	18.0	---			
31						6.0	---	---	---			
MEAN						6.0	7.0	17.0	18.5			

05123900 BOUNDARY CREEK NEAR LANDA, ND

LOCATION.--Lat 48°48'46", long 100°51'46", at east line sec.35, T.162 N., R.79 W., Bottineau County, Hydrologic Unit 09010003, on right bank 80 ft (24 m) downstream from bridge on county road, 5 mi (8 km) upstream from mouth, and 6 mi (10 km) southeast of Landa.

DRAINAGE AREA.--230 mi² (596 km²), of which about 60 mi² (160 km²) is probably noncontributing.

PERIOD OF RECORD.--September 1957 to current year.

REVISED RECORDS.--WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,420.03 ft (432.825 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Some regulation since 1977 by Soil Conservation Service dam above station.

AVERAGE DISCHARGE.--21 years, 13.1 ft³/s (0.371 m³/s), 9,490 acre-ft/yr (11.7 hm³/yr); median of yearly mean discharges, 5.4 ft³/s (0.15 m³/s), 3,900 acre-ft/yr (4.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft³/s (101 m³/s) Apr. 9, 1969, gage height, 12.70 ft (3.871 m); maximum gage height, 12.90 ft (3.932 m) Apr. 1, 1976, backwater from ice and snow; no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 210 ft³/s (5.95 m³/s) Mar. 31, gage height, 9.5 ft (2.90 m), backwater from ice; no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	160	.74	.02	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	155	.66	.02	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	150	.46	.02	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	144	.35	.01	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	138	.32	.01	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	113	.41	.01	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	82	.54	.01	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	82	.95	.01	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	64	1.0	.01	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	70	1.1	.01	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	51	1.2	.01	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	42	1.1	.01	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	31	1.0	.01	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	25	.90	.01	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	20	.80	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	15	.70	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	12	.60	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	9.8	.50	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	7.0	.50	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	5.1	.50	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	4.2	.45	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	3.3	.40	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	2.6	.40	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	1.9	.35	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	1.9	.30	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	1.3	.25	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	1.2	.20	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	5.0	1.1	.15	.00	.00	.00	.00
29	.00	.00	.00	.00	---	20	.95	.10	.00	.00	.00	.00
30	.00	.00	.00	.00	---	50	.82	.07	.00	.00	.00	.00
31	.00	---	.00	.00	---	180	---	.04	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	255.00	1395.17	17.04	.17	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	8.23	46.5	.55	.006	.000	.000	.000
MAX	.00	.00	.00	.00	.00	180	160	1.2	.02	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.82	.04	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	506	2770	34	.3	.00	.00	.00

CAL YR 1977 TOTAL 15.13 MEAN .041 MAX 1.8 MIN .00 AC-FT 30
WTR YR 1978 TOTAL 1667.38 MEAN 4.57 MAX 180 MIN .00 AC-FT 3310

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND
(International gaging station)
(Radiochemical station)

LOCATION.--Lat 48°59'47", long 100°57'29", in SW¼SE¼ sec.30, T.164 N., R.79 W., Bottineau County, Hydrologic Unit 09010003, on left bank 1,200 ft (370 m) upstream from second crossing of international boundary, 1 mi (2 km) downstream from Fish and Wildlife Service Dam 357, 7 mi (11 km) northeast of Westhope, 11 mi (18 km) downstream from Boundary Creek, and at mile 154.5 (248.6 km).

DRAINAGE AREA.--16,900 mi^2 (43,800 km^2), approximately, of which about 10,300 mi^2 (26,700 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1929, April 1930 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1338: 1932. WSP 2113: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,402.45 ft (427.467 m), revised (revised on the basis of USGS levels of Sept. 1, 1978), National Geodetic Vertical Datum of 1929. Prior to Mar. 28, 1938, nonrecording gage at site 6.3 mi (10.1 km) upstream at datum 2.52 ft (0.768 m) higher.

REMARKS.--Records good. Flow regulated by dams on Souris River and tributaries, combined capacity, about 321,000 acre-ft (3,960 hm^3). Diversion at Eaton Dam for irrigation of about 7,600 acres (30.8 km^2) and other small diversions for irrigation and municipal supply above station.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--48 years (1930-78), 257 ft^3/s (7.278 m^3/s), 186,200 acre-ft/yr (230 hm^3/yr); median of yearly mean discharges, 138 ft^3/s (3.91 m^3/s), 100,000 acre-ft/yr (123 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft^3/s (357 m^3/s) Apr. 26, 1976, gage height, 19.16 ft (5.840 m); maximum daily reverse flow, 35 ft^3/s (0.99 m^3/s) Apr. 8, 1943, caused by backwater from downstream tributary inflow; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 846 ft^3/s (24.0 m^3/s) Apr. 22, gage height, 7.94 ft (2.420 m); minimum daily discharge, 10 ft^3/s (0.28 m^3/s) Mar. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	18	26	25	25	21	71	610	101	80	245	217
2	19	15	26	26	25	19	76	336	48	80	250	222
3	19	14	26	26	25	16	91	312	48	80	250	222
4	19	14	26	26	25	14	89	306	46	98	256	226
5	20	15	26	26	25	14	120	272	48	94	250	231
6	21	16	26	25	25	12	162	267	45	87	245	250
7	24	16	26	24	26	11	178	272	45	80	245	245
8	24	15	25	24	26	11	245	262	44	80	250	236
9	24	14	26	24	26	10	272	272	64	83	250	231
10	22	15	26	24	26	10	485	272	51	94	250	231
11	22	15	26	24	27	11	650	267	44	229	245	250
12	22	16	26	24	27	12	702	272	44	330	245	250
13	22	16	25	24	27	12	690	278	59	354	256	212
14	21	16	26	24	27	12	674	360	58	372	256	194
15	22	16	26	24	27	12	670	450	55	372	256	158
16	22	16	26	23	27	12	670	444	56	366	250	101
17	21	16	26	23	27	12	698	284	46	348	231	91
18	21	18	27	23	27	13	698	276	62	346	166	74
19	21	19	27	23	27	13	714	267	48	330	174	34
20	21	19	26	24	27	13	698	272	48	278	166	32
21	21	21	26	24	27	14	726	300	53	203	170	31
22	22	22	26	24	26	16	778	294	59	198	170	31
23	21	22	26	24	26	18	754	284	59	190	174	31
24	20	23	26	24	26	21	734	294	56	203	174	31
25	20	24	26	24	27	21	750	284	56	231	178	31
26	20	24	26	24	28	22	766	284	61	240	186	30
27	20	26	25	24	27	23	778	278	69	245	186	31
28	20	26	25	24	24	24	766	278	71	245	186	32
29	19	26	25	24	---	28	730	278	73	245	194	30
30	20	27	25	24	---	31	750	212	76	245	203	31
31	21	---	25	25	---	43	---	158	---	245	212	---
TOTAL	651	560	801	751	735	521	16185	9297	1693	6673	6769	4016
MEAN	21.0	18.7	25.8	24.2	26.3	16.8	540	300	56.4	215	219	134
MAX	24	27	27	26	28	43	778	610	101	372	256	250
MIN	19	14	25	23	24	10	71	158	44	80	166	30
AC-FT	1290	1110	1590	1490	1460	1030	32100	18440	3360	13240	13470	7970

CAL YR 1977 TOTAL 7248.72 MEAN 19.9 MAX 55 MIN .10 AC-FT 14380
WTR YR 1978 TOTAL 48672.00 MEAN 133 MAX 778 MIN 10 AC-FT 96540

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued
(National stream-quality accounting network station)
(Radiochemical station)
(Pesticide station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-64, 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1956 to September 1964, October 1966 to September 1968, October 1973 to current year.
WATER TEMPERATURES: October 1954 to September 1955, October 1956 to September 1959, October 1960 to September 1964, October 1966 to September 1968, October 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 4,750 micromhos Feb. 21, 1961; minimum recorded, 232 micromhos Apr. 18, 1957.
WATER TEMPERATURES: Maximum recorded, 28.5°C July 4, 1975; minimum recorded, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 2,420 micromhos Jan. 23; minimum recorded, 477 micromhos Apr. 19.
WATER TEMPERATURES: Maximum recorded, 27.0°C July 2; minimum recorded, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
OCT										
04...	1840	--	19	1350	8.8	10.0	--	11.4	106	56
19...	1430	--	22	1450	8.3	8.5	25	9.9	89	53
NOV										
01...	1340	18	--	1460	8.1	7.0	--	10.3	89	64
15...	0940	--	16	1610	8.1	2.0	25	9.8	74	64
29...	1245	26	--	1610	8.3	1.0	--	15.6	116	98
DEC										
14...	1245	--	27	1600	7.8	1.0	35	8.0	59	76
JAN										
05...	1315	--	26	1970	7.6	.5	--	1.3	0	79
18...	1215	23	--	2230	7.0	.5	55	.0	0	72
FEB										
10...	1045	--	26	2270	7.5	.5	--	.0	0	62
22...	1500	26	--	2410	7.4	.0	70	.0	0	47
MAR										
07...	1100	--	11	1920	7.4	.0	--	.0	0	57
24...	1730	--	21	1630	7.4	.0	28	1.5	10	57
APR.										
04...	1830	--	89	620	7.5	2.0	--	7.5	58	31
20...	1700	--	697	480	8.6	3.5	33	14.0	110	50
MAY										
02...	1345	336	--	680	8.5	14.5	--	9.4	97	65
07...	1100	--	10	--	--	--	--	--	--	--
17...	1315	--	277	790	8.3	16.5	35	8.1	90	59
JUN										
01...	1500	101	--	860	8.4	13.5	--	9.6	96	47
13...	1615	--	74	885	8.4	19.5	37	8.3	94	43
28...	1510	71	--	885	8.8	24.0	--	--	--	62
JUL										
13...	1800	--	350	870	9.1	21.0	37	10.4	123	88
AUG										
01...	1300	245	--	970	8.6	20.0	--	6.9	79	71
15...	1645	--	257	1110	8.6	21.5	35	6.3	76	49
SEP										
07...	1445	245	--	960	8.6	19.5	--	8.5	97	39
19...	1130	--	32	935	8.7	11.5	32	8.7	79	40

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)
OCT										
04...	K550	K13	K42	--	--	--	--	--	--	--
19...	K233	K5	K25	540	250	94	74	130	34	2.4
NOV										
01...	820	68	230	--	--	--	--	--	--	--
15...	140	70	K20400	580	260	99	80	160	37	2.9
29...	--	<2	<10	--	--	--	--	--	--	--
DEC										
14...	320	K5	K15	670	120	120	90	200	39	3.4
JAN										
05...	--	--	--	--	--	--	--	--	--	--
18...	K15	<1	K9	850	65	160	110	260	39	3.9
FEB										
10...	840	K2	K5	--	--	--	--	--	--	--
22...	E15000	K7	K7	880	41	170	110	290	42	4.3
MAR										
07...	250	K8	--	--	--	--	--	--	--	--
24...	27000	K12	270	580	34	120	67	200	42	3.6
APR										
04...	K400	K3	540	--	--	--	--	--	--	--
20...	K10350	K120	220	160	41	34	17	38	33	1.3
MAY										
02...	K55000	K6	K22	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
17...	3000	K1	K10	290	84	63	32	69	33	1.8
JUN										
01...	K240000	K2800	40	--	--	--	--	--	--	--
13...	50000	K8	640	320	67	68	36	81	35	2.0
28...	27000	<2	K32	--	--	--	--	--	--	--
JUL										
13...	K750	K11	K100	290	25	55	36	96	41	2.5
AUG										
01...	K100	K10	<2	--	--	--	--	--	--	--
15...	2000	K12	K16	300	0	51	41	130	48	3.3
SEP										
07...	K67	45	K25	--	--	--	--	--	--	--
19...	1600	K18	125	290	0	57	37	100	41	2.5

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT										
04...	--	--	--	--	--	--	--	--	--	989
19...	17	350	0	290	2.8	490	34	.3	1.7	1650
NOV										
01...	--	--	--	--	--	--	--	--	--	1080
15...	18	390	0	320	5.0	550	41	.2	5.3	1190
29...	--	--	--	--	--	--	--	--	--	1190
DEC										
14...	18	670	0	550	17	500	57	.4	7.1	1340
JAN										
05...	--	--	--	--	--	--	--	--	--	1420
18...	22	960	0	790	140	490	76	.4	13	1640
FEB										
10...	--	--	--	--	--	--	--	--	--	1630
22...	5.1	1020	0	840	65	490	100	.6	31	1750
MAR										
07...	--	--	--	--	--	--	--	--	--	1330
24...	13	660	0	540	42	300	72	.5	26	1120
APR										
04...	--	--	--	--	--	--	--	--	--	384
20...	8.4	140	0	110	.6	100	12	.1	7.8	305
MAY										
02...	--	--	--	--	--	--	--	--	--	457
07...	--	--	--	--	--	--	--	--	--	--
17...	14	250	0	210	2.0	200	16	.2	9.4	542
JUN										
01...	--	--	--	--	--	--	--	--	--	586
13...	13	290	8	250	2.0	200	20	.2	15	616
28...	--	--	--	--	--	--	--	--	--	636
JUL										
13...	12	300	9	260	.4	200	24	.2	15	631
AUG										
01...	--	--	--	--	--	--	--	--	--	665
15...	12	350	11	310	1.5	200	36	.2	3.3	701
SEP										
07...	--	--	--	--	--	--	--	--	--	647
19...	14	370	15	330	1.3	160	15	.2	8.7	637

K - Results based on colony count outside the acceptable range (non-ideal colony count).

E - Estimated.

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
04...	--	--	1.35	50.7	--	7	.03	--	.12
19...	--	1010	1.43	62.4	--	19	.20	.20	.48
NOV									
01...	--	--	1.47	52.5	--	31	.17	--	1.3
15...	--	1150	1.62	51.4	--	11	.37	.38	.87
29...	--	--	1.62	83.5	--	5	.11	--	.04
DEC									
14...	--	1320	1.82	97.7	--	12	.15	.13	.45
JAN									
05...	--	--	1.93	99.7	--	16	.10	--	.70
18...	--	1610	2.23	102	--	7	.01	.03	.94
FEB									
10...	--	--	2.22	114	--	22	.01	--	1.6
22...	--	1700	2.38	123	--	15	.06	.02	2.0
MAR									
07...	--	--	1.81	39.5	--	20	.01	--	1.9
24...	--	1130	1.52	63.5	--	26	.01	.03	1.8
APR									
04...	--	--	.52	92.3	--	9	.15	--	.59
20...	310	289	.41	574	28	60	.26	.34	.06
MAY									
02...	--	--	.62	415	--	15	.01	--	.01
07...	--	--	--	--	--	--	--	--	--
17...	--	527	.74	405	--	18	.04	.04	.11
JUN									
01...	--	--	.80	160	--	35	.05	--	.05
13...	--	585	.84	123	--	53	.07	.07	.14
28...	--	--	.87	122	--	32	.07	--	.34
JUL									
13...	--	596	.86	596	--	70	.02	.04	.60
AUG									
01...	--	--	.90	440	--	15	.10	--	.03
15...	--	658	.95	486	--	10	.05	.05	.12
SEP									
07...	--	--	.88	428	--	7	.02	--	.04
19...	--	591	.87	55.0	--	18	.03	.05	.07

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)
OCT										
04...	1.4	1.5	--	--	1.5	6.8	.06	--	--	--
19...	1.5	2.0	--	--	2.2	9.7	.09	.11	.02	.06
NOV										
01...	1.4	2.7	--	--	2.9	13	.07	--	--	--
15...	1.4	2.3	--	--	2.7	12	.07	.05	.01	.03
29...	2.6	2.6	--	--	2.7	12	.09	--	--	--
DEC										
14...	1.7	2.1	--	--	2.3	10	.10	.09	.04	.12
JAN										
05...	2.2	2.9	--	--	3.0	13	.11	--	--	--
18...	2.5	3.4	--	--	3.4	15	.18	.08	.05	.15
FEB										
10...	2.1	3.7	--	--	3.7	16	.73	--	--	--
22...	2.4	4.4	--	--	4.5	20	1.4	.41	.44	1.4
MAR										
07...	1.4	3.3	--	--	3.3	15	2.0	--	--	--
24...	1.5	3.3	.90	2.4	3.3	15	.68	.23	.19	.58
APR										
04...	.71	1.3	--	--	1.5	6.4	.11	--	--	--
20...	1.2	1.3	.41	.89	1.6	6.9	.20	.04	.03	.09
MAY										
02...	1.5	1.5	--	--	1.5	6.7	.08	--	--	--
17...	1.1	1.2	.28	.92	1.2	5.5	.14	.10	.03	.09
JUN										
01...	1.3	1.3	--	--	1.4	6.0	.22	--	--	--
13...	4.6	4.7	3.1	1.6	4.8	21	.17	.11	.09	.28
28...	1.9	2.2	--	--	2.3	10	.32	--	--	--
JUL										
13...	3.3	3.9	2.6	1.3	3.9	17	.34	.18	.16	.49
AUG										
01...	1.6	1.6	--	--	1.7	7.5	.28	--	--	--
15...	1.4	1.5	.10	1.4	1.6	6.9	.26	.22	.20	.61
SEP										
07...	1.5	1.5	--	--	1.5	6.7	.45	--	--	--
19...	1.5	1.6	.40	1.2	1.6	7.2	.43	.32	.34	1.0

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUSPENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) (01006)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)
OCT										
04...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	240	--	--
NOV										
01...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	250	--	--
29...	--	--	--	--	--	--	--	--	--	--
DEC										
14...	--	--	--	--	--	--	--	330	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
18...	--	4	0	5	100	0	200	360	0	0
FEB										
10...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	430	--	--
MAR										
07...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	330	--	--
APR										
04...	--	--	--	--	--	--	--	--	--	--
20...	0	3	0	3	--	--	400	90	--	--
MAY										
02...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	160	--	--
JUN										
01...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	170	--	--
28...	--	--	--	--	--	--	--	--	--	--
JUL										
13...	--	13	4	9	200	0	300	190	0	0
AUG										
01...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	220	--	--
SEP										
07...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	240	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
JAN										
05...	--	--	--	--	--	--	--	--	--	--
18...	0	0	0	10	--	--	0	16	15	1
APR										
04...	--	--	--	--	--	--	--	--	--	--
20...	1	30	30	0	0	0	0	11	9	2
JUL										
13...	1	0	0	0	2	1	1	5	3	2

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN										
05...	--	--	--	--	--	--	--	--	--	--
18...	770	--	110	5	5	0	--	2700	0	2700
APR										
04...	--	--	--	--	--	--	--	--	--	--
20...	30	0	50	--	--	2	30	120	60	60
JUL										
13...	1400	1300	80	6	4	2	--	240	140	100

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)
JAN									
05...	--	--	--	--	--	--	--	--	--
18...	.0	.0	.0	--	--	0	0	1	0
APR									
04...	--	--	--	--	--	--	--	--	--
20...	.0	.0	.0	1	4	0	0	0	0
JUL									
13...	.0	.0	.0	--	--	0	0	0	0

DATE	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)
JAN									
05...	--	--	--	--	--	--	--	--	--
18...	0	0	--	--	40	30	10	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
20...	0	0	180	.0	20	20	0	<3.9	1.7
JUL									
13...	0	0	--	--	20	20	0	--	--

DATE	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT									
04...	--	--	--	--	--	17	--	--	--
19...	--	--	--	--	--	18	--	--	--
NOV									
01...	--	--	--	--	--	17	--	--	--
15...	--	--	--	--	--	20	--	--	--
29...	--	--	--	--	--	29	--	--	--
DEC									
14...	--	--	--	--	--	20	--	--	--
JAN									
05...	--	--	--	--	--	25	--	--	--
18...	--	--	--	--	--	27	26	.6	--
FEB									
10...	--	--	--	--	--	22	--	--	--
22...	--	--	--	--	--	18	--	--	--
MAR									
07...	--	--	--	--	--	16	--	--	--
24...	--	--	--	--	--	--	14	.9	--
APR									
04...	--	--	--	--	--	--	7.8	.6	--
20...	10	1.3	9.1	1.4	.05	--	8.5	1.4	.00
MAY									
02...	--	--	--	--	--	--	13	1.3	--
17...	--	--	--	--	--	--	14	.9	--
JUN									
01...	--	--	--	--	--	--	15	1.8	--
13...	--	--	--	--	--	--	12	1.8	--
28...	--	--	--	--	--	--	15	3.3	--
JUL									
13...	--	--	--	--	--	--	17	.9	--
AUG									
01...	--	--	--	--	--	--	16	.6	--
15...	--	--	--	--	--	--	18	.6	--
SEP									
07...	--	--	--	--	--	--	17	1.0	--
19...	--	--	--	--	--	--	7.1	1.5	--

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)
OCT 19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 22...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 17...	ND	--	ND	--	--	--	ND	--	ND	--	ND	--
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)
OCT 19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 22...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 17...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)
OCT 19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 22...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 17...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
AUG 15...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

Whole water ND - Not detected at 0.01 μg/L level.
Bed material ND - Not detected at 0.1 μg/mg level.

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COULSON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)
OCT												
19...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB												
22...	ND	--	ND	--	ND	--	ND	--	--	--	--	--
MAY												
17...	ND	--	--	--	ND	--	ND	--	--	--	--	--
AUG												
15...	ND	--	ND	--	ND	--	ND	--	--	--	--	--

DATE	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
19...	ND	ND	16	.95	84
NOV					
15...	--	--	7	.30	83
DEC					
14...	--	--	3	.22	89
JAN					
18...	--	--	15	.93	85
FEB					
22...	--	--	14	.98	49
MAR					
24...	--	--	9	.51	91
APR					
20...	--	--	28	53	95
MAY					
17...	--	--	18	13	95
JUN					
13...	--	--	36	7.2	96
JUL					
13...	--	--	--	--	--
AUG					
01...	--	--	--	--	--
15...	--	--	8	5.6	88
SEP					
07...	--	--	--	--	--
19...	--	--	14	1.2	--

Whole water ND - Not detected at 0.01 μg/L level.
Bed material ND - Not detected at 0.1 μg/mg level.

05124000 SOURIS RIVER NEAR WESTHOPE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1380	1330	1500	1470	1610	1600	1960	1920	2380	2340		
2	1370	1310	1510	1470	1640	1600	1970	1920	2380	2330		
3	1370	1330	1500	1480	1650	1630	1990	1950	2360	2350		
4	1360	1350	1510	1490	1660	1630	1980	1950	2350	2290		
5	1370	1310	1520	1510	1680	1660	1990	1940	2300	2270		
6	1370	1350	1520	1490	1690	1670	1940	1900	2320	2270		
7	1390	1340	1510	1490	1710	1680	1930	1910	2310	2290		
8	1390	1360	1530	1500	1750	1710	1930	1900	2300	2250		
9	1400	1360	1530	1520	1780	1740	1950	1910	2300	2260		
10	1380	1350	1570	1520	1800	1770	1970	1930	2280	2230		
11	1420	1370	1590	1530	1810	1790	2000	1950	2260	2220		
12	1400	1330	1610	1550	1810	1770	2150	2120	2250	2220		
13	1380	1340	1630	1590	1820	1790	2190	2140	2260	2240		
14	1390	1340	1620	1610	1830	1800	2210	2160	2290	2260		
15	1400	1370	1620	1590	1830	1810	2210	2170	2300	2250		
16	1400	1350	1610	1590	1830	1810	2220	2180	2320	2270		
17	1410	1370	1630	1590	1840	1820	2250	2200	2320	2280		
18	1460	1410	1630	1610	1850	1820	2280	2230	2330	2290		
19	1460	1440	1600	1590	1870	1850	2290	2260	2350	2320		
20	1460	1440	1610	1600	1860	1840	2330	2280	---	---		
21	1470	1440	1660	1610	1870	1850	2370	2300	---	---		
22	1450	1430	1680	1650	1870	1850	2410	2350	---	---		
23	1530	1450	1710	1690	1900	1850	2420	2380	---	---		
24	1580	1540	1740	1710	1910	1870	2410	2330	---	---		
25	1550	1490	1760	1730	1920	1890	2380	2330	---	---		
26	1510	1480	1740	1720	1930	1890	2370	2340	---	---		
27	1500	1480	1710	1660	1920	1880	2390	2360	---	---		
28	1510	1450	1670	1620	1910	1870	2410	2370	---	---		
29	1530	1490	1630	1600	1940	1890	2400	2370	---	---		
30	1560	1510	1610	1600	1950	1890	2400	2360	---	---		
31	1540	1510	---	---	1960	1930	2390	2350	---	---		
MONTH	1580	1310	1760	1470	1960	1600	2420	1900	2380	2220		

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	684	672	869	857	879	863	981	963	973	965
2	---	---	689	675	871	859	874	853	969	962	984	962
3	751	738	697	683	867	854	886	864	979	961	977	959
4	635	610	704	697	875	856	882	863	989	968	973	955
5	605	572	711	702	880	861	878	865	992	974	977	952
6	584	572	721	709	872	863	871	849	999	980	974	956
7	584	566	721	714	874	858	873	851	1010	976	970	953
8	573	552	726	719	872	851	869	862	997	971	964	947
9	549	513	727	717	891	865	871	858	985	967	959	945
10	514	493	729	719	893	876	879	857	995	970	960	950
11	502	488	740	730	885	859	866	844	1010	976	961	951
12	488	478	743	732	890	861	868	849	1010	986	962	935
13	486	479	750	743	885	872	879	858	1010	989	943	933
14	488	482	754	743	908	878	889	873	1010	988	941	938
15	490	486	784	754	908	891	901	879	1010	991	942	929
16	492	484	795	778	911	894	914	888	1020	995	940	910
17	491	484	809	787	918	897	911	901	1010	999	935	928
18	488	479	814	797	934	911	907	894	1010	991	946	936
19	491	477	819	800	921	904	907	894	1010	999	954	944
20	494	479	808	799	917	883	914	901	1010	1000	970	953
21	553	499	810	799	906	880	927	907	1010	1000	976	968
22	563	536	821	804	896	883	920	910	1010	1000	1000	982
23	593	560	826	815	916	383	950	923	1020	1000	1020	1010
24	601	592	835	817	899	879	960	940	1030	1010	1040	1020
25	608	600	828	814	886	879	960	943	1030	997	1060	1050
26	627	609	837	817	882	863	967	943	1020	997	1090	1070
27	636	620	843	825	882	862	964	940	1000	986	1100	1070
28	657	637	861	834	891	881	963	953	994	986	1120	1110
29	673	655	864	843	898	871	967	950	990	979	1150	1120
30	681	671	858	848	887	870	970	956	994	976	1160	1140
31	---	---	867	851	---	---	978	956	980	969	---	---
MONTH	751	477	867	672	934	851	978	844	1030	961	1160	910

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12.0	9.5	7.5	5.5	1.0	1.0	1.0	1.0	.0	-0.5	.0	.0
2	11.5	9.0	6.5	5.0	1.0	1.0	1.0	1.0	-0.5	-0.5	.0	.0
3	11.5	9.0	5.0	3.5	1.0	1.0	1.0	1.0	-0.5	-0.5	.0	.0
4	11.0	9.5	4.0	2.5	1.0	1.0	1.0	1.0	-0.5	-0.5	.0	.0
5	9.0	7.5	3.5	2.5	1.0	1.0	1.0	1.0	-0.5	-1.0	.0	.0
6	7.5	6.5	5.5	3.5	1.0	1.0	1.0	1.0	-1.0	-1.0	.0	.0
7	6.5	5.5	7.0	5.5	1.0	1.0	1.0	1.0	-1.0	-1.0	.0	.0
8	6.5	5.5	6.5	3.5	1.0	.5	1.0	1.0	-1.0	-1.0	.0	.0
9	7.5	5.0	3.0	1.5	.5	.5	1.0	1.0	-1.0	-1.0	.5	.0
10	6.5	5.0	2.5	1.0	1.0	.5	1.0	1.0	-1.0	-1.0	.5	.0
11	6.0	4.5	3.0	1.0	1.0	1.0	1.0	1.0	-0.5	-1.0	.5	.5
12	7.5	4.5	3.0	1.5	1.0	1.0	.5	.5	-0.5	-1.0	.5	.5
13	8.5	6.0	3.0	2.5	1.0	1.0	.5	.5	-0.5	-0.5	.5	.5
14	8.5	6.5	3.0	2.5	1.0	1.0	.5	.5	-0.5	-0.5	.5	.5
15	7.5	5.5	3.5	3.0	1.0	1.0	.5	.5	-0.5	-0.5	.5	.0
16	8.5	5.0	3.5	2.0	1.0	1.0	.5	.5	-0.5	-0.5	.0	.0
17	8.0	6.5	2.5	1.0	1.0	1.0	.5	.5	-0.5	-0.5	.0	.0
18	8.5	6.0	2.0	1.0	1.0	1.0	.5	.5	.0	-0.5	.0	.0
19	8.5	5.5	1.0	1.0	1.0	1.0	.5	.5	.0	.0	.0	.0
20	8.0	7.0	1.0	.0	1.0	1.0	.5	.5	.0	.0	.0	.0
21	7.0	5.5	1.0	.0	1.0	1.0	.5	.5	.0	.0	.0	.0
22	6.0	4.5	1.0	.5	1.0	1.0	.5	.5	.5	.0	.0	.0
23	6.0	3.0	1.0	.5	1.0	1.0	.5	.5	.5	.5	.0	.0
24	7.0	4.5	1.0	.5	1.0	1.0	.5	.5	.5	.5	.0	.0
25	8.0	5.0	1.0	.5	1.0	1.0	.5	.5	.5	.5	.0	.0
26	9.0	7.5	1.0	.5	1.0	1.0	.5	.0	.5	.0	.0	.0
27	8.5	7.0	1.0	1.0	1.0	1.0	.0	.0	.5	.0	.0	.0
28	8.5	6.5	1.0	1.0	1.0	1.0	.0	.0	.0	.0	.0	.0
29	9.0	7.5	1.0	1.0	1.0	1.0	.0	.0	---	---	.0	.0
30	9.5	8.5	1.0	1.0	1.0	1.0	.0	.0	---	---	.0	.0
31	9.0	7.5	---	---	1.0	1.0	.0	.0	---	---	.0	-0.5
MONTH	12.0	3.0	7.5	.0	1.0	.5	1.0	.0	.5	-1.0	.5	-0.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	.0	-0.5	15.5	13.0	14.5	12.0	26.0	23.0	20.5	19.5	20.0	18.0
2	.5	.0	15.0	13.0	16.5	12.5	27.0	25.0	19.5	17.0	21.0	18.5
3	1.0	.5	15.0	12.5	18.5	13.5	26.0	24.0	18.0	16.0	22.0	19.5
4	2.0	.5	15.0	13.0	20.0	15.5	26.0	23.5	19.5	17.0	22.5	20.5
5	1.5	.5	15.0	13.5	20.0	17.0	26.5	23.0	21.0	18.0	23.5	21.0
6	1.5	.5	15.0	13.5	18.5	15.5	26.0	23.5	21.5	18.5	21.5	19.5
7	2.0	.5	14.5	12.5	18.5	15.0	25.0	22.0	22.5	20.0	20.0	18.0
8	1.0	1.0	12.5	11.0	18.5	15.0	23.5	20.5	21.5	20.0	21.0	19.0
9	2.0	.5	14.0	10.5	18.5	14.5	21.5	19.5	22.5	20.0	20.5	18.5
10	1.5	.5	14.5	12.5	19.0	16.5	23.0	19.0	24.0	20.0	20.5	18.0
11	1.0	.5	15.0	13.0	17.5	15.5	21.5	20.5	24.0	21.0	19.5	16.5
12	1.0	.5	13.5	12.5	19.5	15.5	21.5	20.5	24.0	21.5	16.5	14.0
13	1.5	.5	15.0	12.0	20.0	16.5	21.5	19.5	23.5	21.5	14.0	13.5
14	2.5	.5	15.5	13.5	22.5	17.0	23.0	20.5	23.0	22.0	13.5	13.5
15	2.0	1.0	15.5	12.5	23.0	21.0	24.0	22.0	23.0	21.0	15.0	12.5
16	1.5	1.0	17.5	13.5	22.5	20.0	25.0	22.0	23.0	20.5	15.0	13.5
17	2.0	1.0	19.5	16.5	21.0	18.5	24.5	23.5	21.5	19.5	13.5	12.0
18	2.5	1.0	20.0	18.0	21.0	17.5	24.0	22.0	19.5	17.5	13.0	12.0
19	2.5	.5	18.0	14.5	20.0	15.5	23.5	21.5	18.5	16.5	12.0	11.0
20	3.5	.5	18.0	14.0	18.5	15.0	24.0	21.5	19.5	17.0	11.5	9.5
21	6.5	3.0	18.0	15.5	21.5	15.5	23.0	21.5	18.5	16.5	12.0	9.5
22	6.5	4.5	20.0	15.5	22.5	19.5	22.0	21.0	17.5	16.0	13.0	10.0
23	7.5	6.5	21.5	18.5	24.0	20.0	24.0	20.5	17.5	16.0	14.0	11.5
24	9.0	6.5	20.5	19.5	24.5	21.0	25.5	21.5	20.0	16.5	14.5	12.0
25	10.5	8.0	21.0	19.0	23.0	21.5	24.5	22.5	20.0	18.5	15.0	12.0
26	12.0	9.0	21.0	19.0	23.0	20.5	23.5	22.5	21.0	18.5	14.5	13.0
27	13.0	10.5	19.5	18.5	24.0	20.5	22.0	20.5	20.5	19.0	13.5	11.5
28	13.5	11.5	21.5	18.0	26.0	21.0	20.0	19.5	21.0	19.5	13.5	12.0
29	14.5	12.0	22.0	20.0	25.5	24.0	20.5	18.5	20.0	18.5	13.0	12.0
30	15.0	12.5	20.0	18.5	24.5	23.5	21.0	19.0	20.0	18.0	14.0	11.5
31	---	---	18.5	13.0	---	---	21.0	19.0	19.5	18.0	---	---
MONTH	15.0	-0.5	22.0	10.5	26.0	12.0	27.0	18.5	24.0	16.0	23.5	9.5

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 15,77	MAR 24,78	MAY 17,78	JUN 13,78
TIME	0940	1730	1315	1615
TOTAL CELLS/ML	180	1500	3400	21000
DIVERSITY: DIVISION	1.7	1.1	1.2	0.6
.CLASS	2.2	1.1	1.2	0.6
..ORDER	2.5	1.2	1.8	0.9
...FAMILY	2.6	1.6	2.2	1.0
....GENUS	2.6	1.7	2.3	1.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	71	5	--	-	780	4
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	400	2
...OOCYSTACEAE								
....ANKISTRODESMUS	20	11	130	9	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	160	1
....OOCYSTIS	--	-	--	-	--	-	--	-
....PLANKTOSPHAERIA	--	-	--	-	--	-	*	0
....SELENASTRUM	--	-	29	2	76	2	*	0
....TETRAEDRON	--	-	--	-	19	1	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	57	4	150	4	360	2
....TETRASTRUM	--	-	--	-	76	2	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	13	7	43	3	76	2	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	57	2	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	7	4	--	-	57	2	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	*	0
...FRAGILARIACEAE								
....FRAGILARIA	13	7	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	19	1	--	-
...NAVICULACEAE								
....NAVICULA	--	-	14	1	19	1	*	0
...NITZSCHIACEAE								
....NITZSCHIA	7	4	43	3	57	2	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....DINOBRYON	--	-	--	-	--	-	--	-
....OCHROMONAS	59#	33	--	-	--	-	220	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	7	4	--	-	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	7	4	--	-	19	1	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	46#	26	--	-	250	7	1100	5
..HORMOGONALES								
...NOSTOCACEAE								
....APHANIZOMENON	--	-	--	-	2000#	59	18000#	84
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	250	7	--	-
....OSCILLATORIA	--	-	1000#	72	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	14	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	NOV 15,77 0940		MAR 24,78 1730		MAY 17,78 1315		JUN 13,78 1615	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	14	1	250	7	--	-
....PHACUS	--	-	--	-	19	1	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...CERATIACEAE								
....CERATIUM	--	-	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUL 13,78	AUG 15,78	SEP 19,78
TIME	1800	1645	1130
TOTAL CELLS/ML	350000	86	8800
DIVERSITY: DIVISION	0.0	0.7	1.1
.CLASS	0.0	0.7	1.4
..ORDER	0.1	0.7	1.6
...FAMILY	0.7	1.8	2.2
....GENUS	0.7	1.8	2.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	530	6
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	110	1
....KIRCHNERIELLA	--	-	--	-	--	-
....OOCYSTIS	--	-	14#	17	2000#	23
....PLANKTOSPHAERIA	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	1300	15
....SCENEDESMUS	--	-	--	-	210	2
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	160	2
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	*	0	--	-	3600#	41
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	*	0	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	14#	17	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	43#	50	--	-
...NAVICULACEAE						
....NAVICULA	--	-	14#	17	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	--	-	--	-
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....DINOBRYON	--	-	--	-	370	4
....OCHROMONAS	*	0	--	-	270	3
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	--	-
...CRYPTOMONODACEAE						
....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	*	0	--	-	210	2
..HORMOGONALES						
...NOSTOCACEAE						
....APHANIZOMENON	300000#	85	--	-	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	49000	14	--	-	--	-
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED .

05124000 SOURIS (MOUSE) RIVER NEAR WESTHOPE, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	JUL 13,78		AUG 15,78		SEP 19,78	
TIME	1800		1645		1130	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...CERATIACEAE						
....CERATIUM	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$)		Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 19	29	8,820	6,610	1.16	1.28	--	Polyethylene strip
Feb. 22	35	394	315	.000	.000	--	Polyethylene strip
May 17	27	12,400	9,530	11.0	.810	260	Polyethylene strip
Aug. 15	33	3,230	1,340	14.8	3.63	127	Polyethylene strip

06185500 MISSOURI RIVER NEAR CULBERTSON, MT

LOCATION.--Lat 48°07'24", long 104°28'30", in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, Hydrologic Unit 10060005, on right bank at downstream side of bridge on State Highway 16, 3 mi (5 km) southeast of Culbertson, 9.6 mi (15.4 km) downstream from Big Muddy Creek, and at mile 1,620.76 (2,607.80 km).

DRAINAGE AREA.--91,557 mi² (237,133 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1941 to December 1951, April 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,883.4 ft (574.06 m) National Geodetic Vertical Datum of 1929, (Corps of Engineers bench mark). July 1 to Nov. 6, 1941, water-stage recorder at site 400 ft (120 m) upstream at datum 0.11 ft (0.034 m) higher. Nov. 7, 1941, to Aug. 17, 1950, water-stage recorder at site 580 ft (177 m) downstream at present datum. Aug. 18, 1950, to Dec. 31, 1951, nonrecording gage on bridge at present datum. Apr. 1, 1958, to Nov. 1, 1967, water-stage recorder at site 500 ft (150 m) downstream at present datum.

REVISIONS.--WSP 1729: Drainage area.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Flow partly regulated by Fort Peck Lake and many other reservoirs above station. Diversions for irrigation of about 1,030,400 acres (4,170 km²) above station.

AVERAGE DISCHARGE.--28 years (1943-51, 1958-78, after operational level at Fort Peck Lake was reached), 10,760 ft³/s (304.7 m³/s), 7,796,000 acre-ft/yr (9.61 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft³/s (2,210 m³/s) Mar. 26, 1943, gage height, 14.80 ft (4.511 m), from rating curve extended above 30,000 ft³/s (850 m³/s); maximum gage height, 19.14 ft (5.834 m) Mar. 23, 1960, backwater from ice; minimum daily discharge, 575 ft³/s (16.3 m³/s) Nov. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 27,000 ft³/s (765 m³/s) Mar. 30; maximum gage height observed, 14.98 ft (4.566 m) Mar. 30, backwater from ice; minimum daily discharge, 5,200 ft³/s (147 m³/s) Nov. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6200	5440	11000	10800	14600	14000	22800	10300	11700	11200	12700	13900
2	6290	5500	11000	10000	14900	13700	24100	9720	13700	11200	13000	12600
3	6150	5530	10400	9800	15300	13700	22100	9070	13900	11300	13100	12600
4	5930	5530	10800	11000	16100	14900	19900	9350	13500	11700	13100	13200
5	5860	5500	10800	10700	15300	13900	20600	9480	13300	12400	13500	14200
6	5800	5540	10800	11600	15300	14500	22900	9260	13000	12800	13500	14000
7	5720	5470	10300	11800	15300	15000	23300	9090	12800	12900	13600	14000
8	5710	5270	9800	11600	13900	14800	22400	9530	12300	12900	13500	14300
9	5700	5210	9100	11500	13100	12200	21700	9670	12100	12600	13500	14100
10	5660	5270	8600	11500	16100	14000	22200	9280	11900	12000	13400	14000
11	5740	5550	8700	12000	15200	13800	21900	9430	12200	11200	13300	13900
12	5730	5670	9200	12300	15300	14100	20900	9920	12000	11900	13300	14300
13	5870	5860	9800	12300	15300	14500	21800	10100	12100	12100	13400	14700
14	5830	5600	11000	12700	15200	15000	22700	9850	12100	12300	13400	15600
15	5810	5390	11400	12000	15600	14900	23400	9670	12200	12300	13800	15500
16	5750	5250	11600	12200	14900	15100	23300	9620	12300	12300	13800	12000
17	5740	5360	11000	12100	13900	15000	22400	9700	12600	12300	13800	11500
18	5700	5300	10800	12800	14800	13100	21000	9820	12000	12100	14000	12700
19	5700	5300	10200	13600	15100	10400	20000	9790	11600	11900	13900	16100
20	5760	5200	9900	13200	15800	8900	20400	9930	12000	11600	13900	18300
21	5640	5600	9600	13300	16500	8900	20300	10600	12100	11400	13900	19600
22	5700	6200	9600	13900	15800	8500	18700	11300	11100	10900	14100	19300
23	5670	7000	10300	14800	15000	9500	16700	11500	10600	9720	14200	19200
24	5600	8200	10800	14600	14200	11000	14600	8730	10400	10400	13600	18000
25	5250	9700	10600	13600	16000	11900	13000	7750	10100	12200	13100	14900
26	5270	10600	10300	11800	15000	12000	11900	8320	10200	13000	13500	12800
27	5600	11000	10200	13000	14200	14000	11200	9190	10700	14100	13800	15600
28	5300	11300	10100	11300	14500	17200	10800	9140	11100	14100	13900	16900
29	5450	11600	10100	12800	---	20000	10700	9070	11000	14100	14000	16500
30	5710	11000	10100	13800	---	27000	10500	9330	10800	14000	14200	16000
31	5600	---	10000	15000	---	24000	---	10300	---	13600	14400	---
TOTAL	177440	201020	317900	383400	422200	439500	578200	297810	357400	378520	422400	450300
MEAN	5724	6701	10250	12370	15080	14180	19270	9607	11910	12210	13630	15010
MAX	6290	11600	11600	15000	16500	27000	24100	11500	13900	14100	14400	19600
MIN	5250	5200	8600	9800	13100	8500	10500	7750	10100	9720	12700	11500
AC-FT	352000	398700	630600	760500	837400	871700	1147000	590700	708900	750800	837800	893200

CAL YR 1977 TOTAL 3213020 MEAN 8803 MAX 16600 MIN 5200 AC-FT 6373000
WTR YR 1978 TOTAL 4426090 MEAN 12130 MAX 27000 MIN 5200 AC-FT 8779000

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1965 to current year.
WATER TEMPERATURES: July 1965 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 818 micromhos May 26, 1978; minimum daily, 338 micromhos Mar. 30, 1967.
WATER TEMPERATURES: Maximum daily, 24.5°C July 17, 1966; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 818 micromhos May 26; minimum daily, 387 micromhos Apr. 10.
WATER TEMPERATURES: Maximum daily, 21.0°C July 17; minimum daily, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	WEATHER (WMO CODE NUMBER)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 27...	1500	5740	0	692	8.1	19.0	10.0	25	--	10.0	95
NOV 07...	1230	5320	1	687	8.4	7.5	5.0	15	--	11.5	97
DEC 05...	1400	10800	--	700	8.2	-22.0	.0	10	--	12.6	93
JAN 10...	1430	11200	0	648	8.0	-6.0	.0	8	--	12.4	92
FEB 16...	1345	13900	1	658	7.8	-15.0	.0	15	--	12.0	89
MAR 16...	1100	15100	0	625	7.9	.0	.0	30	--	12.0	89
APR 04...	1415	18900	0	386	7.5	16.0	6.0	900	--	--	--
MAY 09...	1600	9720	0	702	8.5	20.0	12.0	280	--	9.7	96
JUN 08...	1330	12500	0	710	8.3	27.0	17.5	95	--	9.0	100
JUL 11...	1500	11400	0	746	8.2	31.0	23.0	--	55	8.3	104
AUG 21...	1500	14100	--	640	8.2	27.0	15.5	--	40	9.5	102
SEP 20...	1000	18000	0	689	8.3	5.5	10.0	--	40	9.8	929

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT 27...	K3	K14	250	79	61	24	57	1.6	4.1	210	0
NOV 07...	K2	K4	240	64	58	23	59	1.7	3.6	210	2
DEC 05...	K6	37	240	75	58	23	48	1.4	3.8	200	0
JAN 10...	K13	20	250	91	61	23	46	1.3	3.9	190	0
FEB 16...	K14	K1000	240	81	57	23	47	1.3	3.6	190	0
MAR 16...	--	K840	230	72	55	22	45	1.3	3.9	190	0
APR 04...	K100	4600	110	22	27	11	38	1.6	5.1	110	0
MAY 09...	K53	1200	230	61	54	22	66	1.9	5.0	200	0
JUN 08...	46	K43	240	78	54	26	68	1.9	4.5	200	0
JUL 11...	62	170	240	80	55	25	65	1.8	4.9	--	--
AUG 21...	K19	K9	230	69	57	21	46	1.3	4.1	--	--
SEP 20...	430	280	200	61	49	19	62	1.9	4.1	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

MISSOURI RIVER MAIN STEM

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 27...	170	2.7	190	10	.7	7.8	445	458	.61	6900	.00
NOV 07...	180	1.4	180	9.7	.7	8.3	427	448	.58	6130	.01
DEC 05...	160	2.0	170	8.5	.6	8.1	405	419	.55	11800	.03
JAN 10...	160	3.0	160	8.5	.7	8.6	412	406	.56	12500	.05
FEB 16...	160	4.8	160	8.3	.7	8.5	390	402	.53	14600	.04
MAR 16...	160	3.8	150	7.8	.7	7.9	381	386	.52	15500	.06
APR 04...	90	5.6	99	3.8	.3	6.0	231	244	.31	11800	.32
MAY 09...	160	1.0	180	9.0	.6	7.9	440	443	.60	11500	.12
JUN 08...	160	1.6	200	12	.7	7.9	458	472	.62	15500	.00
JUL 11...	160	--	190	8.9	.6	8.5	463	454	.63	14300	.02
AUG 21...	160	--	180	8.6	.7	7.7	415	421	.56	15800	.08
SEP 20...	140	--	190	8.3	.6	7.8	448	425	.61	21800	.15

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT 27...	--	.00	--	.31	--	.06	.02	3.4	--	--
NOV 07...	--	.01	--	.06	--	.04	.02	3.1	--	--
DEC 05...	--	.04	--	.08	--	.02	.01	--	3.6	.4
JAN 10...	--	.07	--	.30	--	.04	.02	2.9	--	--
FEB 16...	.12	.01	.13	.02	.17	.04	.01	3.2	--	--
MAR 16...	.42	.01	.43	.17	.49	.06	.00	--	5.1	.4
APR 04...	2.1	.17	2.3	1.4	2.6	.91	.02	22	--	--
MAY 09...	.77	.06	.83	.54	.95	.32	.04	9.0	--	--
JUN 08...	.68	.01	.69	.19	.69	.14	.00	--	3.4	.9
JUL 11...	.34	.14	.48	.27	.50	.09	.02	5.5	--	--
AUG 21...	.49	.02	.51	.19	.59	.11	.01	--	5.5	.7
SEP 20...	1.2	.03	1.2	.68	1.4	.52	.02	--	2.3	3.6

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)
DEC 05...	1400	4	3	100	0	13	0	0	0
MAR 16...	1100	6	3	0	100	3	3	10	10
JUN 08...	1330	5	1	200	200	0	0	0	0
AUG 21...	1500	4	3	300	40	3	4	10	0
SEP 20...	1000	11	4	200	100	9	2	40	0

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC 05...	1	0	6	2	800	30	7	2	20
MAR 16...	2	0	10	3	1300	20	2	0	30
JUN 08...	2	0	22	24	6400	20	10	6	140
AUG 21...	2	<1	24	5	7000	<10	19	3	110
SEP 20...	12	1	44	6	33000	130	23	12	500

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC 05...	0	.0	.0	0	1	0	0	20	10
MAR 16...	0	.1	.0	1	1	1	0	20	10
JUN 08...	5	.1	.0	1	1	0	0	70	10
AUG 21...	2	.2	.3	1	0	0	0	40	<3
SEP 20...	10	.6	.6	2	1	0	0	140	0

DATE	TIME	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ATRA-ZINE, TOTAL (UG/L)	ATRA-ZINE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)
NOV 07...	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 16...	1345	ND	--	ND	--	ND	--	ND	--	ND
MAY 09...	1600	ND	ND	ND	--	ND	ND	ND	ND	ND
AUG 21...	1500	ND	--	--	--	ND	--	ND	--	ND

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL (UG/L)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 16...	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 21...	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOTAL (UG/L)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 16...	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 21...	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOTAL (UG/L)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 16...	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 21...	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)	SIMAZINE TOTAL COULSON COND. (UG/L)	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 16...	--	ND	--	ND	--	ND	ND	--	ND	--
MAY 09...	ND	--	--	--	--	ND	ND	ND	--	--
AUG 21...	--	--	--	--	--	--	ND	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977						
27...	1500	10.0	5740	147	2280	54
NOV						
07...	1230	5.0	5320	66	948	71
APR , 1978						
04...	1415	6.0	18900	1900	97000	96
MAY						
09...	1600	12.0	9720	625	16400	98
JUN						
08...	1330	17.5	12500	406	13700	49
JUL						
11...	1500	23.0	11400	225	6930	65
AUG						
21...	1500	15.5	14100	275	10500	54
SEP						
20...	1000	10.0	18000	1360	66100	91

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
AUG							
21...	1300	668	8.2	26.0	15.5	9.2	99
21...	1400	664	8.2	27.0	15.5	9.3	100
21...	1500	640	8.2	27.0	15.5	9.5	102
21...	1600	662	8.3	26.0	16.0	9.4	102
21...	1700	663	8.2	26.0	16.0	9.3	101
21...	1800	670	8.3	24.5	16.0	9.3	101
21...	1900	682	8.3	24.0	16.0	9.3	101
21...	2000	679	8.3	20.0	16.0	9.3	101
21...	2100	675	8.3	18.0	16.0	9.3	101
21...	2200	674	8.3	20.0	15.5	9.3	100
21...	2300	668	8.3	18.5	15.5	9.0	97
21...	2400	664	8.3	19.0	15.5	9.0	97
22...	0100	665	8.4	18.5	16.0	9.0	97
22...	0200	665	8.4	18.0	16.0	9.0	97
22...	0300	661	8.3	16.5	16.0	9.0	97
22...	0400	664	8.3	16.5	15.5	9.0	97
22...	0500	663	8.3	16.0	15.5	9.0	97
22...	0600	665	8.3	15.5	15.0	9.0	96
22...	0700	664	8.3	17.0	15.0	9.0	96
22...	0800	663	8.3	18.5	15.0	8.9	95
22...	0900	662	8.3	21.0	15.0	8.9	95
22...	1000	662	8.3	22.0	15.0	9.0	96
22...	1100	663	8.3	23.0	15.0	9.0	96
22...	1200	663	8.3	26.0	15.0	9.0	96
22...	1300	663	8.3	26.5	15.5	9.0	97

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679	691	637	664	619	639	520	697	791	706	669	685
2	665	685	628	669	657	657	431	701	808	721	662	679
3	668	678	643	667	638	638	419	711	782	711	662	672
4	665	679	678	667	671	656	412	740	788	711	660	670
5	673	685	637	660	675	644	431	714	796	727	659	663
6	671	691	658	642	611	641	447	712	767	769	660	661
7	673	691	659	632	692	651	428	704	756	757	667	669
8	679	687	770	674	643	648	411	704	736	779	660	669
9	672	677	652	641	641	640	400	707	730	693	658	660
10	660	668	669	663	691	639	387	713	726	693	652	660
11	658	667	676	643	601	629	392	728	722	709	652	658
12	656	667	678	657	638	628	406	732	711	707	659	649
13	659	671	673	678	642	618	419	745	709	709	660	652
14	664	685	676	628	648	631	457	738	702	733	667	652
15	672	688	659	657	666	640	476	749	693	759	660	658
16	671	681	642	633	679	622	487	781	698	765	659	660
17	662	673	645	649	653	620	504	769	679	762	656	680
18	662	666	648	647	635	623	522	740	700	732	658	697
19	658	668	654	646	663	619	512	759	699	702	660	669
20	657	691	648	651	618	631	506	773	693	696	660	690
21	658	712	659	657	653	619	530	764	693	692	663	699
22	668	709	668	670	650	559	536	764	703	689	662	731
23	662	697	676	643	648	521	557	749	713	695	662	728
24	667	705	711	657	650	513	582	748	712	701	662	699
25	662	659	629	763	652	532	608	756	709	683	663	728
26	676	651	687	648	628	535	629	818	697	673	662	747
27	686	658	636	676	641	539	636	799	699	669	662	690
28	690	659	670	646	655	538	649	780	721	668	667	688
29	692	653	676	678	---	503	662	769	719	667	669	688
30	692	639	668	647	---	507	682	742	728	658	669	681
31	689	---	678	682	---	617	---	736	---	656	676	---
MEAN	670	678	664	660	649	603	501	743	726	709	662	681

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	7.5	.0	.0	.0	.0	3.5	10.0	12.0	20.0	16.0	15.0
2	9.0	7.0	.0	.0	.0	.0	3.0	9.0	11.0	20.5	15.5	15.5
3	9.5	6.0	.0	.0	.0	.0	3.5	11.0	11.0	20.5	14.5	16.0
4	9.5	7.0	.0	.0	.0	.0	4.0	11.0	14.0	19.5	14.5	16.5
5	8.5	5.0	.0	.0	.0	.0	5.5	10.5	15.0	19.5	15.0	16.0
6	7.5	5.0	.0	.0	.0	.0	5.5	10.5	16.0	19.5	16.0	16.0
7	8.0	5.0	.0	.0	.0	.0	5.5	10.5	15.5	19.0	16.5	15.5
8	7.0	4.5	.0	.0	.0	.0	5.0	9.5	15.5	19.0	17.0	16.0
9	8.0	3.5	.0	.0	.0	.0	6.0	9.0	16.0	16.5	17.0	15.0
10	7.0	2.5	.0	.0	.0	.0	5.5	11.0	16.0	15.0	17.0	15.0
11	5.0	2.0	.0	.0	.0	.0	6.0	11.0	15.5	16.0	17.0	16.0
12	5.5	2.0	.0	.0	.0	.0	5.0	11.5	14.5	18.5	17.0	14.5
13	7.0	3.0	.0	.0	.0	.0	5.0	11.5	16.0	18.0	17.5	12.5
14	7.5	4.0	.0	.0	.0	.0	5.5	12.5	16.0	18.5	17.5	12.0
15	8.0	4.0	.0	.0	.0	.0	6.5	13.5	16.0	19.5	16.0	12.0
16	9.0	4.0	.0	.0	.0	.0	5.5	15.5	15.0	20.0	16.0	11.0
17	9.0	3.0	.0	.0	.0	.0	6.0	15.5	16.0	21.0	15.5	12.0
18	9.0	1.0	.0	.0	.0	.0	6.5	13.0	16.0	19.5	14.0	12.0
19	9.0	1.0	.0	.0	.0	.0	5.5	13.0	16.5	18.0	14.0	10.5
20	9.0	1.0	.0	.0	.0	.0	5.0	12.0	15.0	17.5	14.5	10.0
21	9.5	.0	.0	.0	.0	.0	5.5	13.0	14.5	17.0	15.0	10.5
22	9.0	.0	.0	.0	.0	.0	6.5	15.0	15.5	17.0	15.5	11.0
23	9.5	.5	.0	.0	.0	.0	6.5	16.0	17.0	18.0	15.5	11.5
24	9.5	.0	.0	.0	.0	.0	6.5	17.5	17.0	19.5	15.0	13.0
25	9.5	.0	.0	.0	.0	.0	7.0	17.5	19.0	19.0	16.0	13.0
26	10.5	.0	.0	.0	.0	.0	8.5	17.5	17.0	20.0	17.0	14.0
27	10.0	.0	.0	.0	.0	.0	9.5	17.0	17.5	19.0	16.0	14.5
28	9.5	.0	.0	.0	.0	.0	11.0	16.0	17.0	19.0	15.0	14.5
29	9.5	.0	.0	.0	---	1.0	11.0	16.5	18.0	17.0	14.5	13.5
30	9.5	.0	.0	.0	---	1.0	10.5	16.0	19.0	16.0	14.0	13.5
31	8.5	---	.0	.0	---	4.0	---	14.0	---	15.5	14.5	---
MEAN	8.5	2.5	.0	.0	.0	.0	6.0	13.0	15.5	18.5	15.5	13.5

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 7,77	MAR 16,78	MAY 9,78	JUN 8,78	JUL 11,78	SEP 20,78
TIME	1230	1100	1600	1330	1500	1000
TOTAL CELLS/ML	1600	830	920	1300	6900	0
DIVERSITY: DIVISION	0.4	0.9	1.0	0.6	1.3	0.0
.CLASS	0.4	0.9	1.0	0.6	1.3	0.0
..ORDER	0.4	1.0	1.0	1.0	2.1	0.0
...FAMILY	1.3	1.8	1.0	1.4	2.4	0.0
....GENUS	1.9	1.9	1.0	2.3	3.3	0.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	19	2	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	720#	46	--	-	--	-	15	1	93	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	350	5	--	-
....FRANCEIA	--	-	--	-	--	-	--	-	46	1	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	*	0	--	-
....OOCYSTIS	--	-	--	-	--	-	59	5	--	-	--	-
....SELENASTRUM	56	4	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	790#	61	530	8	--	-
....CRUCIGENIA	--	-	--	-	--	-	59	5	--	-	--	-
....SCENEDESMUS	450#	29	--	-	--	-	59	5	190	3	--	-
....TETRASTRUM	220	14	--	-	--	-	59	5	93	1	--	-
..ULOTRICHALES												
...CHAETOPHORACEAE												
....STIGEOCLONIUM	--	-	230#	27	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	340#	38	15	1	93	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	*	0	--	-
....COSMARIUM	--	-	--	-	--	-	29	2	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	--	-	--	-	59	5	280	4	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	15	1	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	19	2	--	-	--	-	*	0	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	450#	55	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	59	5	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	59	5	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	38	5	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	19	2	--	-	--	-	--	-	--	-
....NAVICULA	--	-	19	2	--	-	15	1	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	--	-	38	5	--	-	--	-	420	6	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	1500#	22	--	-
....ANACYSTIS	--	-	--	-	570#	63	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	1500#	22	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	390	6	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	1000#	15	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	93	1	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	*	0	--	-
....TRACHELOMONAS	110	7	--	-	--	-	--	-	160	2	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06185600 MISSOURI RIVER STAGE GAGE NO. 4 NEAR NOHLY, MT

LOCATION.--Lat 48°02'10", long 104°09'40", in NE¼ sec.1, T.26 N., R.58 E., Richland County, Hydrologic Unit 10060005, on right bank 4.5 mi (7.2 km) northwest of Nohly, and at mile 1,595.7 (2,567.5 km).

DRAINAGE AREA.--93,000 mi² (241,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 18, 1962 at datum 60.00 ft (18.288 m) lower.

REMARKS.--Records fair. Stage regulated by Fort Peck Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 21.20 ft (6.462 m) Mar. 23, 1960, present datum; minimum daily recorded, 6.87 ft (2.094 m) Apr. 18, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.30	8.06				---	---	---	11.50	11.56	12.28	12.63
2	8.31	8.05				---	---	---	12.18	11.64	12.14	12.32
3	8.32	8.04				---	---	---	12.49	11.64	12.30	12.09
4	8.21	8.09				---	---	---	12.49	11.78	12.26	12.40
5	8.11	7.98				---	---	---	12.39	11.97	12.36	12.55
6	8.11	7.95				---	---	---	12.34	12.25	12.39	12.62
7	8.07	7.98				---	---	---	12.29	12.27	12.41	12.64
8	8.00	7.92				---	---	---	12.17	12.23	12.42	12.65
9	8.05	7.90				---	---	---	12.01	12.14	12.42	12.65
10	8.05	7.90				---	---	---	11.98	11.99	12.41	12.57
11	8.03	---				---	---	---	11.98	11.75	12.40	12.61
12	8.02	---				---	14.02	---	11.94	11.77	12.35	12.72
13	8.05	---				---	14.22	---	11.92	11.92	12.38	12.77
14	8.11	---				---	14.43	---	12.00	11.96	12.33	13.00
15	8.02	---				---	14.61	---	12.02	11.99	12.40	13.03
16	8.01	---				---	14.68	---	11.96	12.02	12.46	12.26
17	8.01	---				---	14.61	---	12.05	11.99	12.48	11.79
18	8.06	---				---	14.31	10.94	11.97	11.97	12.50	12.11
19	8.10	---				---	13.95	10.96	11.86	11.92	12.50	13.11
20	8.08	---				---	13.99	10.95	11.85	11.82	12.47	13.79
21	8.05	---				---	13.91	11.10	11.89	11.72	12.57	14.08
22	8.00	---				---	13.67	11.46	11.75	11.62	12.59	14.12
23	7.97	---				---	13.17	11.75	11.45	11.20	12.64	14.00
24	7.90	---				---	12.61	11.45	11.37	11.03	12.55	13.89
25	7.88	---				---	12.08	10.28	11.29	11.53	12.34	13.18
26	7.86	---				---	---	10.23	11.34	12.04	12.39	12.27
27	8.00	---				---	---	10.62	11.41	12.37	12.52	12.56
28	8.01	---				---	---	10.77	11.57	12.53	12.54	13.32
29	7.98	---				---	---	10.76	11.60	12.53	12.55	13.32
30	8.11	---				18.65	---	10.85	11.52	12.50	12.64	13.22
31	8.24	---				---	---	11.09	---	12.51	12.65	---
TOTAL	249.98	---				---	---	---	356.58	370.24	385.64	386.27
MEAN	8.06	---				---	---	---	11.89	11.94	12.44	12.88
MAX	8.32	---				---	---	---	12.49	12.58	12.65	14.12
MIN	7.86	---				---	---	---	11.29	11.03	12.14	11.79

06185650 MISSOURI RIVER STAGE GAGE NO. 5 AT NOHLY, MT

LOCATION.--Lat 48°00'10", long 104°05'30", in SE¼ sec.16, T.26 N., R.59 E., Richland County, Hydrologic Unit 10060005, on downstream side of bridge, 0.2 mi (0.3 km) northwest of Nohly, and at mile 1,587.7 (2,554.6 km).

DRAINAGE AREA.--93,000 mi² (241,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,800.00 ft (548.640 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Stage regulated by Fort Peck Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 77.22 ft (23.537 m) Mar. 15, 1972; minimum daily recorded, 59.12 ft (18.020 m) Nov. 22, 1964.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61.71	61.46				---	67.02	63.92	66.45	66.43	65.72	65.70
2	61.72	61.40				---	67.42	64.12	66.75	66.60	65.54	65.47
3	61.75	61.42				---	67.57	63.82	66.77	66.90	65.66	65.20
4	61.68	61.47				---	67.08	63.77	66.68	67.12	65.58	65.43
5	61.57	61.39				---	66.88	63.81	66.52	67.34	65.68	65.66
6	61.59	61.33				---	67.21	63.87	66.38	67.73	65.70	65.70
7	61.54	61.36				---	67.62	63.84	66.36	67.45	65.70	65.70
8	61.45	61.31				---	67.61	63.95	66.39	67.29	65.67	65.70
9	61.52	61.30				67.88	67.30	64.14	66.47	67.01	65.69	65.71
10	61.51	61.26				68.17	67.25	64.09	66.69	66.78	65.65	65.69
11	61.47	---				68.22	67.19	64.10	66.91	66.60	65.62	65.70
12	61.48	---				68.22	67.08	64.29	67.07	66.59	65.59	65.87
13	61.49	---				68.39	67.22	64.37	67.40	66.75	65.61	65.90
14	61.52	---				68.75	67.43	64.36	67.63	66.69	65.54	---
15	61.47	---				68.95	67.62	64.31	67.38	66.69	65.60	---
16	61.42	---				69.09	67.68	64.25	66.81	66.64	65.65	---
17	61.40	---				69.12	67.60	64.19	66.78	66.41	65.63	---
18	61.41	---				68.81	67.29	64.25	67.24	66.28	65.65	---
19	61.49	---				68.39	66.86	64.53	67.41	66.20	65.68	---
20	61.46	---				68.31	66.80	65.30	67.16	66.24	65.67	---
21	61.43	---				68.82	66.77	66.27	66.80	66.15	65.64	---
22	61.39	---				69.73	66.47	67.12	66.66	65.89	65.67	---
23	61.38	---				72.38	65.98	67.93	66.58	65.58	65.70	---
24	61.30	---				74.69	65.45	68.17	66.43	65.31	65.67	---
25	61.27	---				74.24	64.90	65.62	66.45	65.49	65.45	---
26	61.25	---				71.72	64.54	65.18	66.84	65.73	65.43	---
27	61.54	---				70.41	64.25	65.46	67.04	65.93	65.58	---
28	61.40	---				70.64	64.09	65.75	67.13	66.07	65.61	---
29	61.30	---				70.33	64.02	65.74	67.09	66.09	65.62	---
30	61.43	---				69.97	63.99	65.72	66.68	66.05	65.70	---
31	61.55	---				69.66	---	66.14	---	66.00	65.72	---
TOTAL	1905.69	---				---	1996.17	2012.38	2004.95	2060.03	2034.62	---
MEAN	61.47	---				---	66.54	64.92	66.83	66.45	65.63	---
MAX	61.75	---				---	67.68	68.17	67.63	67.73	65.72	---
MIN	61.25	---				---	63.99	63.77	66.36	65.31	65.43	---

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT

LOCATION.--Lat 47°40'42", long 104°09'22", in SW¼NE¼SW¼ sec.9, T.22 N., R.59 E., Richland County, Hydrologic Unit 10100004, on left bank at Montana-Dakota Utilities Company powerplant, 0.2 mi (0.3 km) downstream from bridge on State Highway 23, 2.5 mi (4.0 km) south of Sidney, 3.0 mi (4.8 km) downstream from Fox Creek, and 30 mi (48 km) upstream from mouth.

DRAINAGE AREA.--69,103 mi^2 (178,977 km^2). Area at site 4.5 mi (7.2 km) upstream, 68,812 mi^2 (178,223 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1910 to September 1931 (published as "at Intake"), October 1933 to current year. If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as Yellowstone River at Glendive (1898-1910, 1931-34) can be obtained. Monthly discharge only for some periods, published in WSP 1309. Monthly figures of diversions into Lower Yellowstone Canal prior to 1951 published in WSP 1309, 1951-60 published in WSP 1729, 1961-65 published in WSP 1916, 1966-70 published in WSP 2116, and 1971 to current year are published in annual reports.

GAGE.--Water-stage recorder. Datum of gage is 1,881.3 ft (573.42 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Jan. 1, 1911, to Sept. 30, 1931, nonrecording gage at site 32 miles (51 km) upstream at different datum. Apr. 9, 1934, to May 16, 1945, water-stage recorder at two sites within 500 ft (150 m) of highway bridge 0.2 mi (0.3 km) upstream and May 17, 1945, to Apr. 3, 1952, nonrecording gage on same bridge at datum 1.36 ft (0.415 m) higher. Apr. 4, 1952, to Nov. 19, 1967, water-stage recorder at site 4.5 mi (7.2 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation on tributary streams. Diversion for irrigation of about 1,250,000 acres (5,060 km^2) above station. Lower Yellowstone Project Main Canal diverts from left bank in NW¼ sec.36, T.18 N., R.56 E., at Lower Yellowstone diversion dam at Intake about 36.6 mi (58.9 km) upstream for irrigation of about 52,000 acres (210 km^2) of which about one-third lies above station.

AVERAGE DISCHARGE.--66 years, 13,160 ft^3/s (372.7 m^3/s), 9,534,000 acre-ft/yr (11.8 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 159,000 ft^3/s (4,500 m^3/s) June 2, 1921, gage height, 12.6 ft (3.84 m), site and datum then in use; maximum gage height observed, 21.85 ft (6.660 m) Mar. 22, 1947, site and datum then in use, backwater from ice; minimum discharge, 470 ft^3/s (13.3 m^3/s) May 17, 1961, gage height, 2.73 ft (0.832 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111,000 ft^3/s (3,140 m^3/s) May 23, gage height, 20.02 ft (6.102 m); minimum daily, 1,400 ft^3/s (39.6 m^3/s) Nov. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6680	5330	8300	5200	5400	8600	25000	12700	50700	41500	22900	10000
2	7430	5250	7200	5200	5500	8600	22100	17800	49000	44500	22600	9230
3	7900	5280	6400	5200	6000	8600	20400	15700	45700	47400	21300	8940
4	7700	5140	6000	5100	6000	8400	20000	13900	42300	48000	20200	8940
5	7630	5160	5200	4800	6100	8400	18700	13300	38300	52900	19400	8750
6	7200	5160	4500	4600	6400	8600	17200	13600	36400	50800	18400	8320
7	7070	5080	4000	4400	6800	8800	15600	15000	37400	47500	17600	8180
8	8360	5000	2900	4200	7000	9000	14500	17300	38300	45200	16700	8150
9	8250	5000	1900	4300	6900	9500	13800	18200	42200	41300	16100	8080
10	7840	4970	1700	4200	6800	9800	13600	19500	46500	40200	15400	8040
11	7460	5020	1650	4500	6800	10300	12900	21200	48700	41100	14300	8290
12	7100	5020	1650	4600	6800	11400	12400	20800	51900	42200	13700	9350
13	6970	4970	1700	4700	7000	12800	12100	19000	57800	41100	13300	9010
14	6840	4890	1750	4800	7000	14000	11900	19200	58800	40300	12900	10700
15	6740	4860	1900	4700	6600	16000	11600	20200	50900	40400	12600	14600
16	6650	4780	2100	4600	6500	15000	11600	19200	44800	38400	12400	14900
17	6430	4860	3000	5000	6400	14200	11300	17200	49300	36400	12400	13800
18	6340	4890	5200	5300	6700	13800	10700	18200	56200	35300	12200	12500
19	6370	4860	6700	5100	7200	14900	10700	30500	56800	35400	12100	13000
20	6310	3500	7200	5200	7700	19000	10600	50600	50300	37200	11900	14900
21	6280	2400	6800	5300	9000	27000	10300	74900	46000	34600	11700	21500
22	6250	2000	6400	5600	9000	37000	10100	88900	46200	33000	11900	21800
23	6220	1700	5900	5700	9000	54000	9310	104000	45700	32100	11900	17900
24	6120	1600	5500	5700	8800	64600	9090	82800	44300	31900	11700	16200
25	6090	1400	5200	6000	8600	52600	9010	51300	47300	30300	11500	14500
26	5830	1500	5200	5700	8600	47500	9010	46300	50600	28300	11100	13600
27	5920	1600	5200	5800	8600	38100	8860	46600	51800	27400	10600	12900
28	5800	2000	5200	5400	8600	36500	8650	47200	52100	26800	10800	12400
29	5560	2400	5200	5200	---	33400	8500	45100	48500	26000	10700	12200
30	5590	3600	5400	5500	---	29600	8570	43700	42800	26000	10600	12200
31	5510	---	5200	5400	---	27100	---	48700	---	24000	10600	---
TOTAL	208440	119220	142150	157000	201800	677100	388100	1072600	1427600	1167500	441500	362880
MEAN	6724	3974	4585	5065	7207	21840	12940	34600	47590	37660	14240	12100
MAX	8360	5330	8300	6000	9000	64600	25000	104000	58800	52900	22900	21800
MIN	5510	1400	1650	4200	5400	8400	8500	12700	36400	24000	10600	8040
AC-FT	413400	236500	282000	311400	400300	1343000	769800	2128000	2832000	2316000	875700	719800
(†)	0	0	0	0	0	0	0	57300	61200	72000	76200	49400

CAL YR 1977 TOTAL 2565580 MEAN 7029 MAX 27200 MIN 1400 AC-FT 5089000
WTR YR 1978 TOTAL 6365890 MEAN 17440 MAX 104000 MIN 1400 AC-FT 12630000

† Diversions, in acre-feet, by Lower Yellowstone Canal, furnished by Bureau of Reclamation.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: January 1951 to current year.
SUSPENDED SEDIMENT DISCHARGE: July 1972 to current year.

INSTRUMENTATION.--Temperature recorder April to November 1974, May to September 1975, and July 1977 to current year.

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months. Many reservoirs and diversions for irrigation upstream from station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,780 micromhos Jan. 14, 1951; minimum daily, 193 micromhos Aug. 15, 1964.
WATER TEMPERATURES: Maximum daily, 29.0°C July 23, 1960; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily, 26,800 mg/L May 8, 1975; minimum daily, 8 mg/L Jan. 9, 1973.
SEDIMENT LOADS: Maximum daily, 3,030,000 tons (2,750,000 metric tons) May 8, 1975; minimum daily, 130 tons (118 metric tons) Jan. 9, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,160 micromhos May 24, 25; minimum daily, 422 micromhos July 4.
WATER TEMPERATURES: Maximum recorded, 26.0°C Aug. 13; minimum daily, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily, 8,300 mg/L May 20; minimum daily, 59 mg/L Dec. 30, Jan. 8-10.
SEDIMENT LOADS: Maximum daily, 1,440,000 tons (1,306,000 metric tons) May 21; minimum daily, 283 tons (257 metric tons) Nov. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	WEATHER (WMO CODE NUMBER)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)
OCT												
13...	1100	6760	1	1140	8.5	16.0	7.0	600	10.9	98	46	K65
27...	0830	5880	0	750	7.4	14.0	11.0	35	9.4	92	11	K37
NOV												
08...	1130	5040	2	880	8.3	2.0	4.5	25	11.7	98	18	K4
22...	1000	2000	0	965	8.2	-15.0	.0	15	11.6	86	13	K12
DEC												
06...	1130	4800	2	880	8.1	-18.0	.0	15	13.2	98	21	K10
20...	0930	7200	0	1080	8.0	-10.0	.0	30	12.4	92	19	K10
JAN												
11...	1530	4500	0	1020	7.7	-14.0	.0	15	12.2	90	32	56
24...	1300	5800	70	956	7.9	-15.0	.0	15	11.2	83	13	46
FEB												
15...	1200	6610	1	950	7.7	-18.0	.0	20	12.6	93	18	72
MAR												
14...	1430	14000	70	860	7.9	1.0	.5	150	12.2	92	13	K54
25...	1200	49800	0	632	7.4	9.5	1.5	1000	11.8	91	110	--
APR												
05...	1130	18700	1	940	7.9	16.0	11.0	260	4.4	43	44	K40
26...	1000	9010	0	990	8.6	17.0	11.0	30	9.0	88	26	K10
MAY												
09...	2000	18400	0	908	8.3	20.0	12.0	500	9.4	94	48	1620
24...	0900	93800	1	1240	7.8	22.0	19.0	2500	7.3	80	240	--
JUN												
07...	1500	38100	0	802	8.0	21.0	19.5	280	8.0	93	44	K67
28...	1300	50800	0	443	8.1	30.0	20.5	290	7.8	93	32	K73
JUL												
12...	1200	43400	3	578	8.0	23.0	23.0	120	7.6	95	20	K120
27...	1400	28500	2	575	8.4	28.0	23.0	60	7.5	94	27	<1
AUG												
08...	1430	16500	0	681	8.5	30.0	24.0	50	8.1	104	30	K26
22...	1200	12000	3	623	8.8	24.0	20.0	30	8.8	104	13	K29
SEP												
06...	1000	8280	3	736	8.5	19.5	22.5	5	7.1	88	11	K53
19...	1300	12800	61	932	8.2	9.5	11.5	290	9.4	93	31	420

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT											
13...	100	360	--	--	--	--	--	--	--	--	--
27...	K11	<1	250	69	57	27	68	1.9	4.2	200	0
NOV											
08...	K4	K9	--	--	--	--	--	--	--	--	--
22...	K8	K20	330	130	74	35	93	2.2	4.8	240	0
DEC											
06...	K5	30	290	100	69	29	68	1.7	4.3	230	0
20...	K11	55	--	--	--	--	--	--	--	--	--
JAN											
11...	31	37	--	--	--	--	--	--	--	--	--
24...	33	<1	340	150	82	34	87	2.0	4.5	240	0
FEB											
15...	K70	K610	330	150	81	30	81	2.0	4.2	210	0
MAR											
14...	K46	K5900	--	--	--	--	--	--	--	--	--
25...	--	--	190	82	44	19	61	1.9	5.3	130	0
APR											
05...	K32	670	--	--	--	--	--	--	--	--	--
26...	<1	K60	330	140	78	34	95	2.3	4.6	220	7
MAY											
09...	600	3450	--	--	--	--	--	--	--	--	--
24...	800	3700	400	270	95	39	140	3.1	7.8	--	--
JUN											
07...	92	880	--	--	--	--	--	--	--	--	--
28...	360	740	160	79	36	17	44	1.5	3.0	--	--
JUL											
12...	120	180	--	--	--	--	--	--	--	--	--
27...	<1	160	200	78	48	19	53	1.6	3.3	--	--
AUG											
08...	K20	58	--	--	--	--	--	--	--	--	--
22...	K10	130	200	68	48	19	53	1.6	3.3	--	--
SEP											
06...	K13	110	--	--	--	--	--	--	--	--	--
19...	820	1800	310	140	59	40	78	1.9	4.8	--	--

DATE	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L)
OCT											
13...	--	--	--	--	--	--	797	--	1.08	14500	1180
27...	160	13	230	13	.5	5.3	483	504	.66	7670	63
NOV											
08...	--	--	--	--	--	--	563	--	.77	7660	36
22...	200	2.4	280	19	.6	9.1	630	634	.86	3400	17
DEC											
06...	190	2.9	240	11	.4	14	524	550	.71	6790	26
20...	--	--	--	--	--	--	652	--	.89	12700	56
JAN											
11...	--	--	--	--	--	--	687	--	.93	8350	60
24...	200	4.8	300	18	.6	14	643	658	.87	10100	62
FEB											
15...	170	6.7	290	16	.5	13	620	619	.84	11100	59
MAR											
14...	--	--	--	--	--	--	547	--	.74	20700	272
25...	110	8.3	200	8.5	.2	6.1	387	409	.53	52000	2120
APR											
05...	--	--	--	--	--	--	619	--	.84	31300	455
26...	190	.9	290	22	.4	8.2	653	648	.89	15900	69
MAY											
09...	--	--	--	--	--	--	603	--	.82	30000	1120
24...	130	--	500	17	.4	8.0	874	863	1.19	221000	4710
JUN											
07...	--	--	--	--	--	--	543	--	.74	55900	648
28...	81	--	130	6.6	.2	10	283	296	.38	38800	360
JUL											
12...	--	--	--	--	--	--	352	--	.48	41200	266
27...	120	--	180	8.1	.3	9.8	385	394	.52	29600	110
AUG											
08...	--	--	--	--	--	--	457	--	.62	20400	60
22...	130	--	160	9.8	.4	9.6	389	381	.53	12600	77
SEP											
06...	--	--	--	--	--	--	482	--	.66	10800	51
19...	170	--	310	10	.4	12	634	616	.86	21900	920

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT											
13...	.52	.03	1.6	1.6	2.1	.98	--	--	11	--	--
27...	.01	.00	.38	.38	.39	.05	.01	--	3.3	--	--
NOV											
08...	.03	.01	.26	.27	.30	.03	--	--	2.4	--	--
22...	.16	.03	.14	.17	.33	.04	.02	--	3.3	--	--
DEC											
06...	.60	.18	.19	.37	.97	.02	.00	20	--	4.2	.8
20...	.67	.00	.40	.40	1.1	.03	--	--	--	--	--
JAN											
11...	.74	.21	.35	.56	1.3	.04	--	--	2.7	--	--
24...	.59	.09	.14	.23	.82	.06	.03	--	2.4	--	--
FEB											
15...	.55	.07	.26	.33	.88	.06	.03	--	3.1	--	--
MAR											
14...	.65	.08	.60	.68	1.3	.21	--	--	8.5	--	--
25...	.40	.17	3.2	3.4	3.8	1.5	.01	60	--	--	--
APR											
05...	.53	.01	.88	.89	1.4	.33	--	--	22	--	--
26...	.00	.01	.73	.74	.74	.07	.00	--	3.5	--	--
MAY											
09...	.52	.05	1.6	1.6	2.1	.57	--	--	16	--	--
24...	.85	.01	8.4	8.4	9.3	2.0	.01	20	--	6.4	>7.0
JUN											
07...	.65	.01	1.2	1.2	1.9	.56	--	--	8.3	--	--
28...	.15	.01	.62	.63	.78	.45	.02	--	11	--	--
JUL											
12...	.26	.10	.51	.61	.87	.22	--	--	6.1	--	--
27...	.25	.02	.53	.55	.80	.09	.00	--	2.0	--	--
AUG											
08...	.01	.00	.97	.97	.98	.07	--	--	5.7	--	--
22...	.00	.02	.49	.51	.51	.08	.01	<10	--	4.4	.5
SEP											
06...	.04	.01	.60	.61	.65	.06	--	--	5.0	--	--
19...	.47	.05	1.2	1.2	1.7	.40	.03	--	14	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)
DEC												
06...	1130	4	3	100	--	1	2	20	4	1	0	6
MAR												
25...	12	7	2	600	300	11	2	40	20	20	0	57
MAY												
24...	0900	14	1	1200	0	0	1	95	15	46	2	250
AUG												
22...	1200	5	4	200	--	1	1	10	0	0	<1	20

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC												
06...	1	720	4	1	20	4	.0	.0	2	1	30	20
MAR												
25...	1	46000	40	3	1200	20	.0	.0	5	0	200	10
MAY												
24...	4	110000	110	1	2700	0	.3	.0	10	4	90	10
AUG												
22...	3	1800	12	3	100	2	.1	.1	1	1	20	4

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ALDRIN, TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
NOV 22...	1000	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	1200	ND	ND	ND	ND	ND	ND	ND	ND
MAY 09...	2000	ND	ND	ND	ND	ND	ND	ND	ND
AUG 08...	1430	ND	ND	ND	ND	ND	ND	ND	ND

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
NOV 22...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SIMA- ZINE TOTAL COUL- SON COND. (UG/L)	PCB, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 22...	ND	ND	ND	ND	ND	ND	ND	ND
FEB 15...	ND	ND	ND	ND	ND	ND	ND	ND
MAY 09...	ND	ND	ND	--	--	ND	ND	--
AUG 08...	ND	ND	ND	--	--	ND	ND	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM
OCT , 1977							
13...	1100	7.0	6760	1210	22100	86	98
NOV							
08...	1130	4.5	5040	61	830	--	--
DEC							
06...	1130	.0	4800	98	1270	--	--
MAR , 1978							
25...	1200	1.5	49800	2670	359000	50	71
APR							
26...	1000	11.0	9010	176	4280	--	--
MAY							
09...	2000	12.0	18400	1030	51200	75	99
19...	1700	15.0	33100	8820	788000	--	--
20...	0700	14.0	43400	7980	935000	--	--
20...	1700	15.0	57200	9080	1400000	--	--
21...	0700	13.0	72100	7590	1480000	--	--
21...	1700	15.0	78700	6800	1440000	--	--
22...	0630	14.5	85600	4540	1050000	--	--
22...	1700	16.0	91900	5080	1260000	--	--
23...	0630	17.0	99600	4280	1150000	--	--
23...	1145	17.0	103000	3950	1100000	54	72
23...	1700	18.0	108000	3710	1080000	--	--
24...	0510	17.5	103000	5040	1400000	59	77
24...	0900	19.0	93800	5540	1400000	65	86
24...	1220	19.0	81900	5590	1240000	58	78
24...	1700	20.0	67200	58[illegible]0	1060000	--	--
25...	0630	19.0	53000	4050	580000	--	--
25...	1700	20.0	49200	3630	482000	--	--
JUN							
07...	1500	19.5	38100	877	90200	36	54
JUL							
12...	1200	23.0	43400	539	63200	--	--
AUG							
08...	1430	24.0	16500	278	12400	--	--
22...	1200	20.0	12000	139	4500	--	--
SEP							
19...	1300	11.5	12800	1550	53600	74	89

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977						
13...	100	--	--	--	--	--
NOV						
08...	--	--	--	--	--	97
DEC						
06...	--	--	--	--	--	92
MAR , 1978						
25...	86	96	100	--	--	--
APR						
26...	--	--	--	--	--	53
MAY						
09...	100	--	--	--	--	--
19...	--	--	--	--	--	90
20...	--	--	--	--	--	89
20...	--	--	--	--	--	89
21...	--	--	--	--	--	87
21...	--	--	--	--	--	87
22...	--	--	--	--	--	80
22...	--	--	--	--	--	83
23...	--	--	--	--	--	84
23...	87	96	99	100	--	--
23...	--	--	--	--	--	86
24...	86	92	96	98	100	--
24...	95	98	100	--	--	--
24...	93	98	100	--	--	--
24...	--	--	--	--	--	93
25...	--	--	--	--	--	89
25...	--	--	--	--	--	88
JUN						
07...	80	96	100	--	--	--
JUL						
12...	--	--	--	--	--	67
AUG						
08...	--	--	--	--	--	57
22...	--	--	--	--	--	60
SEP						
19...	100	--	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
OCT											
13...	1100	3	58	100	--	--	--	--	--	--	--
JUN											
07...	1500	2	4	92	100	--	--	--	--	--	--
JUL											
12...	1200	0	1	2	4	7	9	12	29	65	100
AUG											
08...	1430	53	93	99	100	--	--	--	--	--	--
SEP											
19...	1300	1	44	98	100	--	--	--	--	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	803	761	900	967	975	977	825	950	883	486	642	672
2	791	772	941	1010	955	968	840	920	869	472	607	663
3	794	779	929	1010	935	956	855	1040	820	459	571	666
4	820	780	863	1020	940	951	879	1010	857	422	563	679
5	807	765	839	1030	952	950	890	1000	900	449	563	681
6	831	774	825	1030	966	958	904	960	887	518	580	690
7	883	799	834	1040	985	982	949	910	845	485	581	705
8	807	811	840	1030	958	991	968	880	808	453	581	700
9	812	802	843	1030	952	995	978	930	739	462	587	701
10	812	801	860	1040	957	1010	998	1000	657	465	601	708
11	849	801	874	1030	965	991	1040	1020	597	483	619	710
12	779	799	908	1020	985	937	1050	1070	561	510	622	698
13	784	811	910	1030	980	880	1060	1100	528	492	618	729
14	792	822	912	1060	955	841	1070	1100	491	500	617	742
15	784	815	931	1050	927	843	1070	1090	488	510	611	715
16	771	823	962	1040	912	812	1060	1070	521	488	612	730
17	758	820	1050	1020	918	771	1050	1060	542	483	617	699
18	769	827	1020	976	---	769	1020	1010	512	509	613	729
19	763	852	986	946	---	751	1020	924	454	508	610	765
20	768	857	984	943	941	864	1010	769	452	540	613	770
21	772	917	962	962	958	779	1010	839	491	545	618	730
22	771	942	900	975	981	705	1030	919	488	536	622	654
23	761	970	850	967	1000	638	1030	1000	482	552	633	691
24	756	982	841	953	1010	572	1030	1160	466	563	630	752
25	749	999	844	937	1010	634	1010	1160	471	560	631	740
26	746	993	861	935	989	657	1000	1080	488	565	631	731
27	749	970	867	948	975	660	987	988	468	581	640	737
28	756	954	888	962	967	652	987	874	447	639	647	732
29	761	951	899	971	---	691	983	827	438	622	650	734
30	761	947	915	978	---	730	977	796	453	617	658	730
31	771	---	939	985	---	790	---	804	---	614	662	---
MEAN	785	857	902	997	963	829	986	976	603	519	615	713

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.5	10.5	11.0	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0
2	11.0	9.0	10.5	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0
3	12.0	10.5	11.5	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
4	11.5	10.5	11.0	6.5	5.5	6.0	.0	.0	.0	.0	.0	.0
5	10.5	9.5	10.0	6.0	5.5	6.0	.0	.0	.0	.0	.0	.0
6	10.0	9.0	9.5	6.0	5.5	5.5	.0	.0	.0	.0	.0	.0
7	9.0	9.0	9.0	5.5	5.0	5.5	.0	.0	.0	.0	.0	.0
8	9.5	9.0	9.0	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
9	9.5	8.5	9.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
10	8.5	6.5	7.5	3.0	2.0	2.0	.0	.0	.0	.0	.0	.0
11	7.0	6.0	6.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
12	7.0	5.0	6.0	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
13	8.0	6.5	7.5	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
14	8.5	7.5	8.0	3.0	2.5	2.5	.0	.0	.0	.0	.0	.0
15	9.0	7.5	8.0	3.5	3.0	3.0	.0	.0	.0	.0	.0	.0
16	10.0	8.0	9.0	3.5	2.5	3.0	.0	.0	.0	.0	.0	.0
17	9.5	8.5	9.0	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
18	9.5	8.0	9.0	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
19	10.5	9.0	9.5	1.0	.5	.5	.0	.0	.0	.0	.0	.0
20	10.0	9.5	10.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
21	10.0	9.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	10.0	9.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	10.5	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	10.5	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	11.0	10.0	10.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	11.5	10.5	11.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	10.5	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	10.5	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	10.5	9.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	10.5	9.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	9.0	8.5	8.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	12.0	5.0	9.5	8.5	.0	2.5	.0	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
3	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
4	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
5	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
6	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
7	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
8	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
9	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
10	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
11	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
12	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
13	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
14	.0	.0	.0	.0	.0	.0	---	---	---	---	---	---
15	.0	.0	.0	.5	.0	.0	---	---	---	---	---	---
16	.0	.0	.0	.5	.0	.0	---	---	---	---	---	---
17	.0	.0	.0	.5	.0	.0	---	---	---	---	---	---
18	.0	.0	.0	.5	.0	.5	---	---	---	---	---	---
19	.0	.0	.0	.5	.0	.5	---	---	---	---	---	---
20	.0	.0	.0	.5	.0	.5	---	---	---	---	---	---
21	.0	.0	.0	.5	.0	.5	---	---	---	---	---	---
22	.0	.0	.0	---	---	---	---	---	---	---	---	---
23	.0	.0	.0	---	---	---	---	---	---	---	---	---
24	.0	.0	.0	---	---	---	---	---	---	---	---	---
25	.0	.0	.0	---	---	---	---	---	---	---	---	---
26	.0	.0	.0	---	---	---	---	---	---	---	---	---
27	.0	.0	.0	---	---	---	---	---	---	---	---	---
28	.0	.0	.0	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	23.0	21.5	22.5	23.0	22.0	22.5	21.5	19.5	20.5
2	---	---	---	23.5	22.5	23.0	22.0	21.0	21.5	22.5	20.5	21.5
3	---	---	---	23.0	22.0	22.5	21.5	20.0	21.0	23.5	21.5	22.5
4	---	---	---	23.0	22.0	22.0	22.0	20.0	21.0	24.5	22.0	23.5
5	---	---	---	22.0	21.0	21.5	23.0	20.5	22.0	24.5	23.0	24.0
6	---	---	---	21.0	20.5	21.0	24.0	21.5	23.0	24.0	23.0	24.0
7	---	---	---	20.5	20.0	20.5	23.5	22.5	23.0	23.5	22.5	23.0
8	---	---	---	20.5	18.5	19.5	23.0	22.5	23.0	23.0	22.5	23.0
9	---	---	---	20.0	18.5	19.0	22.5	22.5	22.5	22.5	21.0	22.0
10	---	---	---	20.5	19.0	19.5	22.5	22.5	22.5	23.0	21.0	22.0
11	---	---	---	21.5	20.0	21.0	23.0	22.5	23.0	22.5	20.0	21.5
12	---	---	---	21.5	20.5	21.0	23.5	23.0	23.0	19.5	17.5	18.5
13	---	---	---	21.5	20.0	21.0	26.0	23.5	24.5	17.5	16.5	16.5
14	---	---	---	22.0	20.5	21.5	25.0	23.0	23.5	16.0	15.0	15.5
15	---	---	---	23.0	21.5	22.0	23.5	22.0	23.0	15.0	14.0	14.5
16	---	---	---	23.5	22.0	23.0	23.0	22.0	22.5	15.0	14.0	14.5
17	---	---	---	23.5	23.0	23.0	22.5	21.0	21.5	14.5	13.5	14.0
18	---	---	---	23.0	21.5	22.5	20.5	19.0	19.5	14.5	13.0	13.5
19	---	---	---	21.5	20.0	21.0	20.5	18.5	19.5	13.0	11.5	12.0
20	---	---	---	21.0	19.5	20.0	21.0	19.0	20.0	12.5	11.0	11.5
21	---	---	---	20.0	19.0	19.5	21.5	19.5	20.5	12.5	11.0	11.5
22	---	---	---	20.5	19.0	20.0	21.5	20.0	20.5	12.5	11.0	12.0
23	---	---	---	21.0	19.0	20.0	21.5	19.5	20.5	14.0	12.0	13.0
24	---	---	---	22.0	20.0	21.0	22.5	20.0	21.5	15.0	13.0	14.0
25	---	---	---	23.0	21.5	22.0	24.0	21.5	22.5	15.5	14.0	14.5
26	---	---	---	24.0	22.0	23.0	23.5	22.5	23.0	16.0	14.5	15.5
27	---	---	---	23.5	23.0	23.5	23.0	21.5	22.0	16.5	14.5	15.5
28	21.0	20.5	21.0	23.5	22.5	23.0	21.5	20.5	21.0	17.0	16.0	16.5
29	20.5	20.0	20.5	23.0	22.0	22.5	21.0	19.5	20.5	16.5	15.5	16.0
30	22.0	20.0	21.0	22.5	21.5	22.0	20.5	19.0	20.0	16.5	15.5	16.0
31	---	---	---	23.0	21.0	22.0	20.5	18.5	19.5	---	---	---
MONTH	22.0	20.0	21.0	24.0	18.5	21.5	26.0	18.5	21.5	24.5	11.0	17.5

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	OCTOBER MEAN CONCENTRATION (MG/L)	OCTOBER LOADS (T/DAY)	NOVEMBER MEAN CONCENTRATION (MG/L)	NOVEMBER LOADS (T/DAY)	DECEMBER MEAN CONCENTRATION (MG/L)	DECEMBER LOADS (T/DAY)	JANUARY MEAN CONCENTRATION (MG/L)	JANUARY LOADS (T/DAY)	FEBRUARY MEAN CONCENTRATION (MG/L)	FEBRUARY LOADS (T/DAY)	MARCH MEAN CONCENTRATION (MG/L)	MARCH LOADS (T/DAY)
1	1170	21100	66	950	122	2730	60	842	80	1170	98	2280
2	1720	34500	77	1090	132	2570	61	856	79	1170	94	2180
3	3190	68000	87	1240	122	2110	61	856	78	1260	86	2000
4	3020	62800	85	1180	106	1720	60	826	78	1260	78	1770
5	2520	51900	82	1140	99	1390	60	778	78	1280	76	1720
6	2310	44900	74	1030	97	1180	60	745	79	1370	74	1720
7	2330	44500	66	905	96	1040	60	713	80	1470	73	1730
8	4110	92800	63	850	92	720	59	669	84	1590	75	1820
9	4720	105000	64	864	88	451	59	685	86	1600	83	2130
10	4060	85900	74	993	85	390	59	669	83	1520	101	2670
11	3040	61200	78	1060	86	383	61	741	77	1410	128	3560
12	2030	38900	72	976	85	379	97	1200	74	1360	167	5140
13	1260	23700	65	872	85	390	137	1740	77	1460	227	7850
14	857	15800	63	832	85	402	121	1570	78	1470	323	12200
15	683	12400	64	840	91	467	103	1310	75	1340	496	21400
16	535	9610	66	852	123	697	93	1160	73	1280	542	22000
17	353	6130	74	971	216	1750	92	1240	72	1240	424	16300
18	304	5200	87	1150	268	3760	93	1330	70	1270	418	15600
19	248	4270	97	1270	298	5390	94	1290	68	1320	930	37400
20	202	3440	97	917	313	6080	94	1320	66	1370	1430	73400
21	162	2750	89	577	294	5400	95	1360	68	1650	1800	131000
22	141	2380	80	432	256	4420	95	1440	78	1900	2470	247000
23	137	2300	77	353	213	3390	95	1460	93	2260	3720	542000
24	122	2020	76	328	173	2570	95	1460	102	2420	4140	722000
25	112	1840	75	283	143	2010	95	1540	104	2410	2990	425000
26	102	1610	77	312	118	1660	94	1450	103	2390	4440	569000
27	86	1370	78	337	100	1400	92	1440	102	2370	3640	374000
28	77	1210	82	443	84	1180	88	1280	99	2300	3170	312000
29	72	1080	90	583	70	983	83	1170	---	---	2530	228000
30	70	1060	102	991	59	860	82	1220	---	---	1890	151000
31	69	1030	---	---	60	842	81	1180	---	---	1540	113000
TOTAL	---	810700	---	24621	---	58714	---	35540	---	44910	---	4048870

DAY	APRIL MEAN CONCENTRATION (MG/L)	APRIL LOADS (T/DAY)	MAY MEAN CONCENTRATION (MG/L)	MAY LOADS (T/DAY)	JUNE MEAN CONCENTRATION (MG/L)	JUNE LOADS (T/DAY)	JULY MEAN CONCENTRATION (MG/L)	JULY LOADS (T/DAY)	AUGUST MEAN CONCENTRATION (MG/L)	AUGUST LOADS (T/DAY)	SEPTEMBER MEAN CONCENTRATION (MG/L)	SEPTEMBER LOADS (T/DAY)
1	1340	90500	523	20200	4660	638000	683	76500	758	46900	104	2810
2	1120	66800	2370	114000	3040	402000	686	82700	736	44900	86	2140
3	950	52300	1960	83100	2040	252000	784	100000	666	38300	85	2050
4	890	48100	1460	54800	1620	185000	1040	135000	509	27800	85	2050
5	770	38900	1160	41700	1400	145000	2730	390000	414	21700	82	1940
6	612	28400	932	34200	1150	113000	2040	280000	344	17100	75	1680
7	527	22200	740	30000	949	95800	885	114000	289	13700	72	1590
8	454	17800	770	36000	965	99800	765	93400	274	12400	71	1560
9	392	14600	1100	54100	1130	129000	680	75800	256	11100	69	1510
10	352	12900	2140	113000	1360	171000	572	62100	246	10200	67	1450
11	333	11600	2700	155000	1330	175000	583	64700	240	9270	82	1840
12	331	11100	2690	151000	1420	199000	574	65400	232	8580	496	12500
13	312	10200	2470	127000	1730	270000	453	50300	219	7860	560	13600
14	248	7970	2310	120000	1680	267000	519	56500	193	6720	812	23500
15	278	8710	2320	127000	1790	246000	597	65100	188	6400	1090	43000
16	298	9330	2690	139000	1360	165000	452	46900	180	6030	1130	45500
17	273	8330	3600	167000	1080	144000	477	46900	176	5890	1100	41000
18	210	6070	5220	257000	1480	225000	472	45000	178	5860	1070	36100
19	166	4800	7830	645000	1380	212000	571	54600	187	6110	2060	72300
20	156	4460	8300	1130000	1180	160000	1540	155000	172	5530	3670	148000
21	156	4340	7120	1440000	1040	129000	878	82000	137	4330	3800	221000
22	152	4150	5000	1200000	785	97900	712	63400	142	4560	2430	143000
23	137	3440	4140	1160000	645	79600	521	45200	190	6100	1090	52700
24	123	3020	5240	1170000	658	78700	451	38800	190	6000	878	38400
25	124	3020	3870	536000	1060	135000	422	34500	167	5100	805	31500
26	183	4450	3320	415000	1780	243000	598	45700	142	4260	642	23600
27	153	3660	2760	347000	1420	199000	498	36800	132	3850	345	12000
28	96	2240	2230	284000	1120	158000	429	31000	118	3440	240	8040
29	88	2020	2020	246000	960	126000	462	32400	104	3000	212	6980
30	102	2360	1920	227000	765	88400	854	60000	106	3030	212	6980
31	---	---	3990	525000	---	---	1030	66700	113	3230	---	---
TOTAL	---	507770	---	11149100	---	5628200	---	2596400	---	359250	---	1000320

TOTAL LOAD FOR YEAR: 26264395 TONS.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO MAY 1978

DATE	NOV 6,77		MAR 25,78		MAY 9,78		MAY 24,78	
TIME	1130		1200		2000		0900	
TOTAL CELLS/ML	900		4200		1000		170	
DIVERSITY: DIVISION	1.2		0.0		0.2		0.0	
.CLASS	1.2		0.0		0.2		0.0	
..ORDER	1.7		0.0		0.7		0.0	
...FAMILY	2.5		2.2		2.9		1.9	
....GENUS	2.5		2.4		3.2		1.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...SCENEDESMACEAE								
....SCENEDESMUS	400#	44	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	50	6	--	-	14	1	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	50	6	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	86	8	--	-
....MELOSIRA	--	-	--	-	14	1	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	140	3	29	3	--	-
....RHOICOSPHENIA	--	-	--	-	29	3	57#	33
...CYMBELLACEAE								
....AMPHORA	--	-	140	3	--	-	--	-
....CYMBELLA	--	-	140	3	200#	19	29#	17
....EPITHEMIA	--	-	420	10	43	4	--	-
...DIATOMACEAE								
....DIATOMA	100	11	710#	17	130	12	57#	33
....OPEPHORA	--	-	--	-	14	1	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	14	1	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	100	11	570	13	29	3	29#	17
...NAVICULACEAE								
....NAVICULA	50	6	1800#	43	240#	23	--	-
...NITZSCHIACEAE								
....NITZSCHIA	100	11	280	7	140	14	--	-
...SURIRELLACEAE								
....CYMATOPLEURA	--	-	--	-	*	0	--	-
....SURIRELLA	--	-	--	-	43	4	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	*	0	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	14	1	--	-
....TRACHELOMONAS	50	6	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PHYTOPLANKTON ANALYSES, JUNE 1978 TO SEPTEMBER 1978

DATE	JUN 7,78	JUL 27,78	AUG 22,78	SEP 19,78
TIME	1500	1400	1200	1300
TOTAL CELLS/ML	670	7300	28000	390
DIVERSITY: DIVISION	0.7	1.5	1.4	1.0
.CLASS	0.7	1.5	1.6	1.0
..ORDER	1.5	2.1	1.9	1.0
...FAMILY	2.4	2.6	2.0	1.0
....GENUS	2.6	3.0	2.5	1.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	180	2	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	89	13	320	4	700	2	--	-
....CHODATELLA	45	7	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	280	1	--	-
....SELENASTRUM	--	-	--	-	420	1	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	1900#	26	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	360	5	2300	8	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	180#	27	1200#	16	5600#	20	200#	50
....SKELETONEMA	--	-	1100#	16	4900#	17	--	-
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	--	-	46	1	*	0	--	-
...DIATOMACEAE								
....DIATOMA	130#	20	46	1	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	45	7	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	280	1	--	-
...NAVICULACEAE								
....NAVICULA	45	7	180	2	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	130#	20	1100	15	420	1	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	980	3	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	730	10	12000#	41	--	-
....ANACYSTIS	--	-	--	-	560	2	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	46	1	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	46	1	--	-	--	-
..PERIDINIALES								
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	200#	50

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
SEP						
19...	1300	28	1.10	.945	.120	.000

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
AUG							
22...	1000	620	8.7	21.0	20.0	8.7	102
22...	1100	621	8.7	22.0	20.0	8.7	102
22...	1200	623	8.7	24.0	20.0	8.8	104
22...	1300	621	8.8	24.0	20.0	8.9	105
22...	1400	623	8.8	23.5	20.0	9.0	106
22...	1500	616	8.8	22.5	20.0	9.0	106
22...	1600	620	8.7	23.0	20.0	9.0	106
22...	1700	624	8.7	23.0	20.0	9.0	106
22...	1800	620	8.8	21.5	20.0	9.2	108
22...	1900	622	8.7	21.0	20.0	9.2	108
22...	2000	618	8.7	20.0	20.0	9.1	107
22...	2100	620	8.7	20.0	19.5	9.1	106
22...	2200	618	8.8	17.5	19.5	9.0	100
22...	2300	618	8.8	16.0	19.5	8.9	97
22...	2400	618	8.7	16.0	19.5	8.9	97
23...	0100	628	8.8	17.0	19.5	8.8	96
23...	0200	628	8.7	16.0	19.0	8.5	92
23...	0300	619	8.7	16.0	19.0	8.3	95
23...	0400	623	8.7	15.5	19.0	8.3	95
23...	0500	623	8.7	14.5	19.0	8.2	94
23...	0600	625	8.7	14.5	18.5	8.1	93
23...	0700	628	8.7	15.0	18.5	8.2	93
23...	0800	632	8.7	19.5	18.5	8.2	93
23...	0900	632	8.7	22.0	18.5	8.3	94
23...	1000	630	8.7	23.0	19.5	8.5	100

06329590 YELLOWSTONE RIVER STAGE GAGE NO. 1 NEAR FAIRVIEW, MT

LOCATION.--Lat 47°48'34", long 104°02'36", on east line sec.29, T.24 N., R.60 E., Richland County, Hydrologic Unit 10100004, on left bank 3 mi (4.8 km) south of Fairview, and at mile 15.2 (24.5 km).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,860.00 ft (566.928 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 19, 1962 at datum 60.00 ft (18.288 m) lower.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 23.78 ft (7.248 m) Mar. 21, 1960, present datum; minimum daily recorded, 9.10 ft (2.774 m) May 16-17, Aug. 12-13, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.44	10.04				---	---	12.31	19.00	18.40	11.58	12.22
2	10.82	9.89				---	---	14.24	18.78	18.78	---	12.02
3	11.00	9.98				---	---	13.98	18.40	19.25	---	11.86
4	10.91	9.96				---	---	13.51	18.08	19.34	---	11.85
5	10.89	9.97				---	---	13.23	17.70	19.69	---	11.81
6	10.77	9.97				---	---	13.27	17.52	19.76	---	11.65
7	10.63	9.94				---	---	13.51	17.67	19.30	---	11.59
8	10.89	9.89				---	---	14.16	17.78	19.10	---	11.57
9	11.13	9.90				13.93	---	14.53	18.25	18.62	---	11.52
10	10.91	9.90				14.20	---	14.76	18.75	18.45	---	11.49
11	10.78	---				14.47	---	15.17	19.00	18.51	---	11.61
12	10.64	---				14.82	13.03	15.20	19.24	18.75	---	12.03
13	10.54	---				15.43	12.96	14.79	19.70	18.62	---	11.87
14	10.50	---				15.93	12.91	14.67	19.80	18.49	---	12.10
15	10.47	---				16.38	12.87	14.90	19.15	18.55	---	13.21
16	10.38	---				16.86	12.83	14.77	18.45	18.38	12.75	13.57
17	10.30	---				17.03	12.75	14.30	18.78	18.07	12.72	13.32
18	10.32	---				17.28	12.56	14.24	19.48	17.88	12.70	12.83
19	10.34	---				17.50	12.54	16.44	19.56	17.81	12.70	12.79
20	10.30	---				18.76	12.50	18.27	18.98	18.11	12.68	13.19
21	10.29	---				19.83	12.45	19.63	18.60	17.71	12.62	14.92
22	10.27	---				---	12.31	20.52	18.68	17.44	12.69	15.51
23	10.26	---				---	12.15	21.70	18.76	17.26	12.66	14.57
24	10.21	---				---	12.08	21.46	18.62	17.20	12.62	14.04
25	10.15	---				---	12.03	18.87	18.95	16.96	12.47	13.56
26	10.13	---				---	12.04	18.60	19.37	16.60	12.42	13.23
27	10.14	---				---	12.00	18.70	19.40	16.37	12.32	12.99
28	10.12	---				---	11.90	18.80	19.42	16.23	12.29	12.82
29	10.11	---				---	11.85	18.61	19.19	16.09	12.33	12.77
30	10.09	---				---	11.80	18.39	18.60	16.06	12.32	12.77
31	10.04	---				---	---	18.90	---	15.78	12.33	---
TOTAL	324.77	---				---	---	504.43	563.66	557.56	---	381.28
MEAN	10.48	---				---	---	16.27	18.79	17.99	---	12.71
MAX	11.13	---				---	---	21.70	19.80	19.76	---	15.51
MIN	10.04	---				---	---	12.31	17.52	15.78	---	11.49

06329597 CHARBONNEAU CREEK NEAR CHARBONNEAU, ND

LOCATION.--Lat 47°51'10", long 103°47'40", in SW¼ sec.31, T.151 N., R.102 W., McKenzie County, Hydrologic Unit 10100004, Little Missouri National Grassland on right bank, 45 ft (14 m) downstream from county highway bridge, and 1.5 mi (2.4 km) west of Charbonneau.

DRAINAGE AREA.--149 mi^2 (386 km^2).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--12 years, 15.3 ft^3/s (0.433 m^3/s), 11,080 acre-ft/yr (13.7 hm^3/yr); median of yearly mean discharges, 14 ft^3/s (0.40 m^3/s), 10,140 acre-ft/yr (13 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft^3/s (142 m^3/s) Mar. 17, 1976, gage height, 11.02 ft (3.359 m), backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft^3/s (56.6 m^3/s) Mar. 25, gage height, 9.29 ft (2.832 m); only peak above base of 100 ft^3/s (2.83 m^3/s); no flow Sept. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.79	.85	.70	.05	1.1	90	1.8	210	5.4	.38	.34
2	1.2	.71	.80	.70	.05	1.1	81	1.6	93	3.5	.23	.19
3	.95	.58	.80	.70	.05	1.0	23	1.8	45	2.2	.28	.11
4	.87	.60	.75	.70	.05	1.0	16	2.1	27	5.5	.29	.07
5	.87	.60	.70	.70	.05	1.0	15	2.2	14	26	.31	.02
6	.95	.60	.60	.70	.05	1.0	17	2.4	6.7	37	.32	.02
7	1.1	.65	.55	.70	.05	1.1	10	5.7	5.1	70	.35	.04
8	1.2	.60	.55	.65	.05	1.3	9.0	19	3.5	36	.25	.03
9	1.1	.60	.40	.60	.05	3.0	8.1	25	2.7	18	.26	.00
10	1.2	.55	.40	.55	.05	5.0	6.5	16	2.4	7.9	.25	.00
11	1.2	.55	.50	.50	.05	25	5.7	10	2.1	4.2	.23	.71
12	1.1	.60	.70	.50	.05	45	4.8	6.7	2.0	3.1	.23	2.5
13	1.0	.65	.90	.45	.05	30	4.5	5.1	1.8	2.2	.26	5.8
14	1.0	.70	1.0	.45	.05	25	4.5	4.2	1.9	1.6	.28	3.8
15	.95	.75	1.5	.40	.05	20	4.1	3.5	5.9	1.5	.28	2.1
16	.87	.80	1.4	.35	.05	20	3.8	2.9	4.0	1.4	.27	1.4
17	.79	.75	1.2	.30	.05	25	3.6	2.7	2.9	.87	.21	.78
18	.79	.70	1.1	.25	.05	30	3.4	2.2	2.4	.57	.19	1.0
19	.71	.70	1.0	.20	.10	58	3.5	3.1	2.1	.79	.24	1.3
20	.64	.70	.95	.15	.15	62	3.3	3.3	2.2	.71	.28	1.1
21	.71	.65	.90	.15	.30	273	3.0	3.1	2.1	.57	.35	.95
22	.79	.65	.90	.15	.50	992	2.8	2.5	1.9	.50	.48	.67
23	.71	.65	.85	.15	.80	857	2.8	2.1	1.9	.44	.72	.56
24	.64	.60	.85	.15	1.5	974	2.7	1.9	1.6	.33	.75	.38
25	.57	.60	.80	.15	1.5	1000	2.5	1.8	1.8	.28	.79	.34
26	.50	.60	.75	.10	1.4	1600	2.5	1.6	2.4	.28	.46	.30
27	.44	.65	.75	.10	1.3	800	2.2	1.4	3.5	.28	.43	.20
28	.38	.70	.75	.05	1.2	300	2.1	1.4	6.7	.23	.43	.15
29	.44	.80	.75	.05	---	232	1.9	1.3	11	.15	.38	.13
30	.57	.90	.75	.05	---	204	1.9	3.5	10	.23	.40	.20
31	.64	---	.70	.05	---	175	---	50	---	.38	.43	---
TOTAL	25.98	19.98	25.40	11.40	9.65	7759.6	301.2	191.9	479.6	232.11	11.01	25.19
MEAN	.84	.67	.82	.37	.34	250	10.0	6.19	16.0	7.49	.36	.84
MAX	1.2	.90	1.5	.70	1.5	1600	90	50	210	70	.79	5.8
MIN	.38	.55	.40	.05	.05	1.0	1.9	1.3	1.6	.15	.19	.00
AC-FT	52	40	50	23	19	15390	597	381	951	460	22	50

CAL YR 1977 TOTAL 683.04 MEAN 1.87 MAX 89 MIN .00 AC-FT 1350
WTR YR 1978 TOTAL 9093.02 MEAN 24.9 MAX 1600 MIN .00 AC-FT 18040

06329610 YELLOWSTONE RIVER STAGE GAGE NO. 2 NEAR CARTWRIGHT, ND

LOCATION.--Lat 47°51'50", long 103°58'06", on south line sec.26, T.151 N., R.104 W., McKenzie County, Hydrologic Unit 10100004, on bridge on State Highway 23, 2 mi (3.2 km) west of Cartwright, and at mile 8.6 (13.8 km).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,800.00 ft (548.640 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 87.08 ft (26.542 m) Mar. 23, 1978; minimum daily recorded, 58.58 ft (17.855 m) July 26, 1974.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65.44	65.10				---	70.35	66.38	---	72.75	69.84	---
2	65.78	64.98				---	69.77	67.82	---	73.10	69.78	---
3	66.00	65.04				---	69.37	68.74	---	73.57	69.55	---
4	65.90	65.00				---	69.26	68.26	---	73.65	69.35	---
5	65.88	64.99				---	69.12	67.87	---	73.90	69.24	---
6	65.70	65.01				---	68.76	67.77	---	74.20	69.05	---
7	65.61	64.98				---	---	67.88	---	73.60	68.87	---
8	65.85	64.94				---	---	68.40	---	73.40	68.65	---
9	66.12	64.95				66.90	---	68.98	---	72.84	68.50	---
10	65.91	64.95				67.13	---	69.14	---	72.60	68.32	---
11	---	---				67.41	---	69.45	---	72.61	68.05	---
12	---	---				67.85	---	---	---	72.80	67.80	---
13	---	---				69.50	---	---	---	72.68	67.65	---
14	---	---				70.47	---	---	---	72.53	67.51	---
15	---	---				70.72	---	---	73.58	72.52	67.41	---
16	---	---				71.20	---	---	72.89	72.31	67.34	---
17	---	---				71.05	---	---	73.15	72.00	67.00	---
18	65.33	---				71.70	---	68.86	74.00	71.77	---	---
19	65.36	---				71.83	---	70.55	74.26	71.70	---	67.24
20	65.23	---				72.47	---	72.18	73.63	71.94	---	67.50
21	65.31	---				74.00	---	73.29	73.11	71.67	---	69.03
22	65.29	---				77.67	66.86	74.10	73.10	71.39	---	69.85
23	65.28	---				87.08	66.85	74.91	73.16	71.24	---	69.10
24	65.25	---				86.31	66.58	---	73.00	71.22	---	68.56
25	65.23	---				83.38	66.53	---	73.28	71.06	---	68.09
26	65.20	---				73.42	66.49	---	73.75	70.76	---	67.78
27	65.20	---				71.54	66.48	---	73.89	70.56	---	67.55
28	65.18	---				71.25	66.44	---	73.95	70.50	---	67.41
29	65.17	---				70.92	66.38	---	73.63	70.37	---	67.31
30	65.15	---				70.67	66.33	---	73.01	70.37	---	67.32
31	65.12	---				70.64	---	---	---	70.16	---	---
TOTAL	---	---				---	---	---	---	2235.77	---	---
MEAN	---	---				---	---	---	---	72.12	---	---
MAX	---	---				---	---	---	---	74.20	---	---
MIN	---	---				---	---	---	---	70.16	---	---

06329620 YELLOWSTONE RIVER STAGE GAGE NO. 3 NEAR BUFORD, ND

LOCATION.--Lat 47°56'16", long 103°57'52", in SW¼ sec.35, T.152 N., R.104 W., McKenzie County, Hydrologic Unit 10100004, on left bank 4 mi (6.4 km) south of Buford, and at mile 3.3 (5.3 km).

DRAINAGE AREA.--70,000 mi² (181,000 km²), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,850.00 ft (563.880 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 19, 1962, at datum 50.00 ft (15.240 m) lower.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 29.55 ft (9.007 m) Mar. 15, 1972; minimum daily recorded, 6.18 ft (1.884 m) Aug. 24, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.25	9.69				---	---	---	17.88	17.50	15.29	11.99
2	10.68	9.54				---	---	---	17.86	17.79	15.23	11.73
3	10.89	9.60				---	---	---	17.55	18.34	14.99	11.51
4	10.85	9.53				---	---	---	17.27	18.59	14.74	11.50
5	10.80	9.51				---	---	---	16.87	18.93	14.57	11.49
6	10.65	9.52				---	---	---	16.61	19.29	14.43	11.25
7	10.46	9.50				---	---	---	16.69	18.73	14.23	11.21
8	10.64	9.42				---	---	---	16.96	18.53	13.97	11.21
9	11.05	---				---	---	---	17.36	18.06	13.83	11.20
10	10.80	---				12.00	---	---	18.00	17.79	13.64	11.15
11	10.64	---				12.32	---	---	18.27	17.84	13.39	11.22
12	10.45	---				12.62	---	---	18.50	18.04	13.11	---
13	10.32	---				13.19	13.21	---	19.10	18.02	12.99	---
14	10.27	---				13.75	13.20	---	19.40	17.84	12.89	---
15	10.21	---				14.20	13.20	---	18.90	17.88	12.77	---
16	10.19	---				14.67	13.18	---	18.02	17.72	12.71	---
17	10.09	---				14.95	13.20	---	18.29	17.39	12.70	---
18	10.02	---				15.02	13.00	14.07	18.98	17.15	12.67	---
19	10.04	---				14.96	12.84	15.33	19.30	17.18	12.65	12.80
20	10.00	---				15.80	12.80	16.77	18.70	17.49	12.64	13.20
21	9.99	---				16.98	12.71	17.83	18.11	17.18	12.59	14.69
22	9.97	---				18.48	12.65	18.71	17.96	16.85	12.61	15.70
23	9.96	---				---	12.40	19.52	18.06	16.67	12.65	15.04
24	9.89	---				---	12.21	19.66	17.79	16.60	12.61	14.40
25	9.88	---				---	12.09	17.37	18.01	16.45	12.48	13.80
26	9.84	---				---	---	16.97	18.59	16.19	12.39	13.25
27	9.82	---				---	---	16.96	18.71	16.00	12.28	12.90
28	9.81	---				---	---	17.29	18.77	16.00	12.19	12.85
29	9.78	---				---	---	17.27	18.57	15.88	12.16	12.78
30	9.75	---				---	---	17.12	17.86	15.85	12.15	12.75
31	9.71	---				---	---	17.58	---	15.70	12.08	---
TOTAL	317.70	---				---	---	---	542.94	539.47	409.63	---
MEAN	10.25	---				---	---	---	18.10	17.40	13.21	---
MAX	11.05	---				---	---	---	19.40	19.29	15.29	---
MIN	9.71	---				---	---	---	16.61	15.70	12.08	---

06329640 MISSOURI RIVER STAGE GAGE NO. 5A AT BUFORD, ND

LOCATION.--Lat 47°59'06", long 103°59'05", in SE¼ sec.15, T.152 N., R.104 W., Williams County, Hydrologic Unit 10110101, on left bank 1.5 mi (2.4 km) southwest of Buford, and at mile 1,580.7 (2,543.3 km).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--April 1960 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,850.00 ft (563.880 m) above mean sea level. Prior to Mar. 8, 1962 at datum 50.00 ft (15.240 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 19.37 ft (5.904 m) Mar. 23, 1978; minimum daily recorded, 2.63 ft (0.802 m) Aug. 15-16, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.90	5.66				---	12.82	8.28	---	14.93	12.58	9.57
2	6.28	5.44				---	12.54	9.89	---	15.14	12.35	9.28
3	6.52	5.52				---	12.38	10.00	---	15.56	12.23	8.92
4	6.52	5.50				---	11.98	9.53	---	15.84	11.98	8.99
5	6.43	5.46				---	11.74	9.36	---	16.06	11.88	9.10
6	6.30	5.40				---	11.68	9.30	---	16.44	11.70	9.03
7	6.12	5.39				11.71	11.80	9.60	---	16.03	11.51	8.95
8	6.14	5.32				11.47	11.68	9.92	14.27	15.84	11.33	8.92
9	6.60	5.31				11.29	11.58	10.46	14.49	15.43	11.19	8.90
10	6.41	5.31				11.65	11.19	10.65	15.00	15.14	11.03	8.84
11	6.26	---				11.93	11.13	10.91	15.40	15.06	---	8.91
12	6.10	---				12.12	11.16	11.16	15.62	15.20	---	9.36
13	6.00	---				12.58	11.24	11.00	15.90	15.25	---	9.37
14	5.99	---				13.16	11.33	10.79	16.02	15.15	---	9.41
15	5.92	---				13.65	11.52	10.90	15.58	15.16	---	10.18
16	5.85	---				14.10	11.66	10.89	14.90	15.05	---	10.45
17	5.79	---				14.37	11.56	10.56	14.90	14.74	10.12	10.01
18	5.78	---				14.30	11.28	10.34	15.62	14.51	10.08	9.85
19	5.83	---				14.11	10.94	11.70	15.92	14.40	10.07	10.22
20	5.79	---				14.49	10.88	13.65	15.53	14.53	10.02	10.97
21	5.79	---				15.50	10.92	---	14.97	14.38	9.97	12.08
22	5.73	---				16.97	10.69	---	14.84	14.03	10.01	13.03
23	5.72	---				19.37	10.24	---	14.94	13.72	10.02	12.72
24	5.63	---				---	9.70	---	15.05	13.52	9.99	12.30
25	5.58	---				---	9.20	---	15.20	13.47	9.78	11.68
26	5.53	---				---	8.75	---	15.71	13.38	9.69	10.72
27	5.61	---				---	8.57	---	15.85	13.28	9.68	10.35
28	5.65	---				---	8.41	---	15.94	13.30	9.68	10.71
29	5.56	---				---	8.26	---	15.79	13.19	9.67	10.72
30	5.61	---				13.48	8.18	---	15.25	13.11	9.68	10.69
31	5.70	---				14.13	---	---	---	13.00	9.67	---
TOTAL	184.64	---				---	324.81	---	---	453.84	---	304.23
MEAN	5.96	---				---	10.83	---	---	14.64	---	10.14
MAX	6.60	---				---	12.82	---	---	16.44	---	13.03
MIN	5.53	---				---	8.18	---	---	13.00	---	8.84

06329650 MISSOURI RIVER STAGE GAGE NO. 6 NEAR BUFORD, ND

LOCATION.--Lat 47°57'18", long 103°54'36", in SE¼ sec.30, T.152 N., R.103 W., Williams County, Hydrologic Unit 10110101, on right bank 5 mi (8 km) southeast of Buford, and at mile 1,576.0 (2,535.8 km).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft (560.832 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 17, 1962, at datum 40.00 ft (12.192 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 24.15 ft (7.361 m) June 29, 1975; minimum daily recorded, 8.23 ft (2.509 m) Aug. 15 and 22, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.64	12.28					---	---	---	21.54	---	16.50
2	12.97	12.09					---	16.73	---	21.68	---	16.25
3	13.21	12.15					---	17.00	---	22.12	18.93	15.86
4	13.22	12.16					---	16.60	---	22.43	18.70	15.89
5	13.13	12.12					---	16.31	---	22.64	18.58	16.04
6	13.04	12.09					---	16.27	---	23.14	18.44	15.98
7	12.89	12.07					---	16.37	---	22.78	18.26	15.90
8	12.83	12.03					---	16.83	---	22.57	18.07	15.90
9	13.20	12.00					---	17.40	---	22.20	17.91	15.89
10	13.14	12.01					---	17.61	---	21.85	17.77	15.85
11	12.99	---					---	17.90	---	21.75	17.56	15.89
12	12.80	---					---	18.25	---	21.84	17.29	16.31
13	12.76	---					---	18.10	---	21.94	17.20	16.41
14	12.69	---					18.40	17.81	22.95	21.82	17.12	16.44
15	12.65	---					18.46	17.89	22.61	21.81	17.04	---
16	12.58	---					18.52	17.93	21.90	21.76	17.01	---
17	12.49	---					18.54	17.61	21.80	21.47	17.03	---
18	12.48	---					18.38	17.32	22.41	21.27	17.00	---
19	12.49	---					18.04	18.57	22.82	21.14	16.97	---
20	12.49	---					17.88	20.65	22.50	21.21	16.94	---
21	12.45	---					17.85	---	21.96	21.19	16.91	18.86
22	12.38	---					17.70	---	21.76	20.79	16.89	19.95
23	12.37	---					17.30	---	21.80	20.47	16.96	19.64
24	12.30	---					16.78	---	21.66	20.21	16.89	19.11
25	12.25	---					16.24	---	21.70	---	16.71	18.49
26	12.20	---					15.87	---	22.20	---	16.60	17.59
27	12.23	---					15.60	---	22.39	---	16.60	17.06
28	12.29	---					15.42	---	22.51	---	16.58	17.38
29	12.21	---					---	---	22.43	---	16.59	17.48
30	12.25	---					---	---	22.00	---	16.58	17.40
31	12.30	---					---	---	---	---	16.58	---
TOTAL	391.86	---					---	---	---	---	---	---
MEAN	12.64	---					---	---	---	---	---	---
MAX	13.22	---					---	---	---	---	---	---
MIN	12.20	---					---	---	---	---	---	---

06329660 MISSOURI RIVER STAGE GAGE NO. 7 NEAR TRENTON, ND

LOCATION.--Lat 47°59'21", long 103°47'57", in NE¼ sec.13, T.152 N., R.103 W., McKenzie County, Hydrologic Unit 10110101, on right bank 5 mi (8 km) south of Trenton, and at mile 1,566.7 (2,520.8 km).

DRAINAGE AREA.--164,000 mi² (425,000 km²), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft (560.832 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 7, 1962, at site 0.8 mi (1.3 km) upstream. Prior to May 29, 1963, at datum 40.00 ft (12.192 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 21.56 ft (6.572 m) July 10, 1975; minimum daily recorded, 4.34 ft (1.323 m) Aug. 19, 22, 1963.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.41	9.07					---	---	17.82	18.15	16.04	13.50
2	9.69	8.95					---	12.87	17.81	18.21	15.84	13.29
3	9.90	8.94					---	13.37	17.55	18.60	15.75	12.96
4	9.95	8.97					---	13.11	17.34	18.95	15.60	12.96
5	9.88	8.92					---	12.84	17.16	19.13	15.42	13.10
6	9.80	8.89					---	12.76	17.03	19.60	15.33	13.09
7	9.69	8.89					---	12.87	17.08	19.32	15.12	12.99
8	9.63	8.84					---	13.28	17.26	19.11	---	13.00
9	---	8.81					---	13.78	17.51	18.78	---	12.95
10	---	8.81					---	14.05	17.97	18.41	---	12.90
11	---	8.81					---	14.31	18.35	18.30	---	12.95
12	---	---					---	14.67	18.55	18.35	---	13.35
13	---	---					---	14.62	18.83	18.40	---	13.38
14	---	---					15.01	14.30	19.18	18.31	---	13.35
15	---	---					15.07	14.30	18.95	18.29	---	13.89
16	---	---					15.10	14.39	18.38	18.27	---	14.25
17	---	---					15.14	14.14	18.23	18.00	13.97	13.97
18	9.29	---					14.98	13.82	18.79	17.75	13.92	13.78
19	9.30	---					14.61	14.72	19.22	17.61	13.92	13.90
20	9.30	---					14.38	16.70	18.97	17.67	13.92	14.36
21	9.29	---					14.28	17.94	18.52	17.69	13.90	15.09
22	9.20	---					14.18	18.63	18.38	17.68	13.86	16.12
23	9.18	---					13.81	19.39	18.39	17.06	13.92	16.13
24	9.12	---					13.38	19.84	18.29	16.81	13.84	15.71
25	9.08	---					12.89	17.61	18.28	16.73	13.69	15.21
26	9.05	---					12.52	16.82	18.72	16.66	13.59	14.45
27	9.04	---					12.20	16.88	18.94	16.52	13.58	13.90
28	9.10	---					---	17.22	19.05	16.58	13.57	14.09
29	9.05	---					---	17.25	18.95	16.50	13.55	14.18
30	9.08	---					---	17.25	18.59	16.44	13.56	14.13
31	9.11	---					---	17.52	---	16.40	13.58	---
TOTAL	---	---					---	---	548.09	554.28	---	416.93
MEAN	---	---					---	---	18.27	17.88	---	13.90
MAX	---	---					---	---	19.22	19.60	---	16.13
MIN	---	---					---	---	17.03	16.40	---	12.90

06329680 MISSOURI RIVER STAGE GAGE NO. 8 NEAR TRENTON, ND

LOCATION.--Lat 48°03'10", long 103°42'54", in NE¼ sec.30, T.153 N., R.101 W., McKenzie County, Hydrologic Unit 10110101, on right bank 5.5 mi (8.8 km) southeast of Trenton, and at mile 1,557.2 (2,505.5 km).

DRAINAGE AREA.--164,000 mi^2 (425,000 km^2), approximately.

PERIOD OF RECORD.--March 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,830.00 ft (557.784 m) above mean sea level. Prior to Jan. 4, 1962 at datum 30.00 ft (9.144 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 28.50 ft (8.687 m) Mar. 25, 1978; minimum daily recorded, 4.96 ft (1.512 m) Aug. 20, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.97	15.50				---	---	17.50	22.59	23.31	21.82	19.63
2	16.16	15.45				---	---	18.40	22.69	23.36	21.60	19.49
3	16.35	---				---	---	19.00	22.57	23.67	21.61	19.29
4	16.47	---				---	---	18.85	22.37	23.98	21.52	19.20
5	---	---				---	---	---	22.18	24.10	21.45	19.25
6	---	---				---	---	---	22.10	24.43	21.39	19.29
7	---	---				---	---	---	22.18	24.32	21.22	19.27
8	---	---				---	---	---	22.29	24.11	21.10	19.22
9	---	---				---	---	---	22.47	23.85	21.06	19.07
10	---	---				---	---	---	22.79	23.73	20.97	19.10
11	---	---				21.29	---	---	23.09	---	20.82	19.32
12	---	---				21.38	---	---	23.27	---	20.68	19.90
13	---	---				21.59	---	---	23.46	---	20.63	19.47
14	---	---				21.90	---	---	23.69	---	20.46	19.30
15	---	---				22.19	20.62	---	23.42	---	20.38	19.64
16	---	---				22.45	20.69	19.90	22.95	---	20.42	19.90
17	15.90	---				22.69	20.68	19.75	22.81	23.30	20.26	19.83
18	15.78	---				22.81	20.60	19.47	23.30	23.09	20.05	19.77
19	15.79	---				22.81	20.39	19.87	23.63	22.98	20.23	19.67
20	15.80	---				22.85	20.03	21.79	23.45	23.01	20.20	20.00
21	---	---				23.30	19.96	22.86	23.14	23.09	20.26	20.58
22	---	---				24.00	19.85	23.57	23.03	22.87	20.30	21.57
23	---	---				25.58	19.60	24.23	23.10	22.68	20.23	21.73
24	---	---				27.82	19.17	24.72	23.10	22.41	20.08	21.40
25	---	---				28.50	18.65	22.66	23.12	22.31	20.06	21.00
26	---	---				---	18.27	21.79	23.43	22.23	19.86	20.39
27	15.61	---				---	17.98	21.87	23.69	22.27	19.78	19.90
28	15.63	---				---	17.75	22.17	23.80	22.11	.00	19.90
29	15.58	---				---	17.60	22.22	23.79	22.17	19.74	19.93
30	15.61	---				---	17.50	22.22	23.59	22.08	19.75	19.97
31	15.62	---				---	---	22.37	---	22.05	19.85	---
TOTAL	---	---				---	---	---	691.09	---	617.78	595.98
MEAN	---	---				---	---	---	23.04	---	19.93	19.87
MAX	---	---				---	---	---	23.80	---	21.82	21.73
MIN	---	---				---	---	---	22.10	---	.00	19.07

06330000 MISSOURI RIVER NEAR WILLISTON, ND

LOCATION.--Lat 48°06'40", long 103°43'00", in SE¼ sec.31, T.154 N., R.101 W., McKenzie County, Hydrologic Unit 10110101, on downstream end of right pier of Lewis and Clark Highway bridge 5 mi (8 km) southwest of Williston, 29.3 mi (47.1 km) downstream from Yellowstone River, and at mile 1,552.7 (2,498.3 km).

DRAINAGE AREA.--164,500 mi² (426,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year. Operated as a stage-discharge station October 1897 to July 1965.

GAGE.--Water-stage recorder. Datum of gage is 1,830.20 ft (557.845 m) National Geodetic Vertical Datum of 1929. See WSP 1917 for history of changes prior to April 1966.

REMARKS.--Records good. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 26.46 ft (8.065 m) Mar. 26, 1978; minimum daily recorded, 7.80 ft (2.377 m) Nov. 2, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.88	14.64	17.72	17.17	19.09	19.61	19.85	15.86	19.49	20.46	20.15	18.22
2	15.01	14.47	17.70	17.22	19.07	19.61	19.28	16.33	19.61	20.47	19.92	18.11
3	15.10	14.41	17.75	17.04	19.24	19.63	19.11	17.02	19.54	20.69	19.97	18.02
4	15.26	14.49	17.78	17.13	19.35	19.64	18.99	16.92	19.36	20.88	19.94	17.89
5	15.15	14.48	17.81	17.38	19.37	19.57	18.75	16.80	19.17	20.97	19.88	17.89
6	15.16	14.44	17.78	17.46	19.35	19.56	18.58	16.59	18.99	21.22	19.87	17.97
7	15.10	14.41	17.56	17.52	19.31	19.60	18.64	16.68	19.02	21.32	19.72	17.94
8	14.98	14.38	17.32	17.55	19.20	19.60	18.73	16.83	19.12	21.28	19.59	17.93
9	15.12	14.34	16.81	17.58	19.13	19.40	18.51	17.13	19.25	21.13	19.63	17.66
10	15.12	14.35	16.73	17.60	19.23	19.39	18.35	17.35	19.41	21.12	19.58	17.75
11	15.09	14.39	16.75	17.65	19.35	19.55	18.27	17.48	19.65	21.05	19.46	17.96
12	14.98	14.46	16.87	17.76	19.46	19.66	17.95	17.64	19.81	20.76	19.35	18.65
13	14.88	14.47	16.97	17.95	19.56	19.77	18.14	17.78	20.06	20.94	19.33	18.04
14	14.86	14.50	17.04	18.19	19.61	19.98	18.19	17.70	20.25	20.96	19.14	17.74
15	14.85	14.40	17.12	18.29	19.62	20.20	18.27	17.61	20.23	20.94	19.07	17.97
16	14.77	14.36	17.22	18.33	19.54	20.41	18.40	17.57	19.90	20.97	19.12	18.15
17	14.70	14.25	17.36	18.33	19.46	20.64	18.36	---	19.67	20.84	18.93	18.19
18	14.70	14.32	17.58	18.35	19.44	20.74	18.21	---	19.96	20.73	18.60	18.23
19	14.82	14.35	17.71	18.36	19.46	20.77	18.06	17.59	20.20	20.72	18.86	17.96
20	14.83	14.11	17.83	18.48	19.46	20.73	17.91	18.85	20.26	20.71	18.82	18.20
21	14.80	14.02	17.86	18.64	19.50	20.87	17.91	19.87	20.16	20.75	18.91	18.54
22	14.79	13.68	17.79	18.74	19.49	21.16	17.81	20.28	20.08	20.69	18.94	19.13
23	14.76	14.08	17.74	18.83	19.57	22.11	17.60	20.66	20.03	20.65	18.91	19.36
24	14.71	14.50	17.73	18.83	19.57	23.75	17.30	20.96	20.10	20.52	18.66	19.25
25	14.63	14.84	17.74	18.68	19.64	25.33	16.96	20.12	20.14	20.41	18.69	19.06
26	14.61	15.47	17.75	18.46	19.67	26.46	16.64	19.87	20.30	20.37	18.55	18.64
27	14.62	15.75	17.65	18.40	19.59	23.45	16.40	18.99	20.47	20.53	18.40	18.33
28	14.69	15.98	17.53	18.37	19.56	22.18	16.21	19.19	20.57	20.26	18.33	18.21
29	14.66	16.41	17.50	18.47	---	20.54	16.08	19.24	20.67	20.36	18.32	18.17
30	14.63	16.69	17.50	18.79	---	19.84	15.93	19.21	20.63	20.29	18.34	18.25
31	14.64	---	17.49	19.04	---	19.90	---	19.30	---	20.25	18.43	---
TOTAL	460.90	439.48	541.77	560.55	543.69	643.65	539.35	---	596.06	643.28	593.41	547.41
MEAN	14.87	14.65	17.48	18.08	19.42	20.76	17.98	---	19.87	20.75	19.14	18.25
MAX	15.26	16.69	17.86	19.04	19.67	26.46	19.85	---	20.67	21.32	20.15	19.36
MIN	14.61	13.68	16.73	17.04	19.07	19.39	15.93	---	18.99	20.25	18.32	17.66

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-65, 1969-70, 1974 to current year.

REMARKS.--Discharge data computed by adding the discharges of station 06329500 Yellowstone River near Sidney, Mont. to that of station 06185500 Missouri River near Culbertson, Mont.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 11...	0900	13500	730	8.5	5.0	850	10.6	88	31	--
NOV 09...	1000	10300	710	8.6	2.5	--	8.4	66	--	--
DEC 06...	1000	16000	720	8.3	1.0	--	10.4	78	--	--
JAN 10...	1300	15800	750	8.1	.0	--	11.6	85	--	--
FEB 14...	1030	22300	720	8.3	.0	--	11.4	83	--	--
MAR 07...	1100	23100	640	8.0	.0	--	11.0	80	--	--
APR 13...	1000	33300	625	8.6	4.5	550	9.2	76	62	--
MAY 04...	0815	24800	800	8.5	11.5	140	9.6	93	47	--
JUN 14...	0900	69900	435	8.3	18.0	300	7.4	82	39	--
JUL 11...	1000	52200	500	8.4	18.0	120	8.0	90	41	--
AUG 08...	0900	31200	595	8.0	20.0	75	8.0	93	25	--
SEP 12...	0930	22200	645	8.6	16.5	58	7.8	85	38	90

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)
OCT 11...	210	50	51	21	90	47	2.7	4.5	200
NOV 09...	270	98	62	28	67	35	1.8	4.4	210
DEC 06...	290	96	68	28	69	34	1.8	4.2	230
JAN 10...	280	110	66	28	70	35	1.8	4.8	210
FEB 14...	300	120	72	28	66	32	1.7	4.9	210
MAR 07...	280	110	67	27	59	30	1.5	17	210
APR 13...	210	81	52	20	60	37	1.8	5.0	160
MAY 04...	280	120	66	28	78	37	2.0	5.1	200
JUN 14...	210	97	55	18	42	30	1.3	3.2	140
JUL 11...	180	75	48	15	44	34	1.4	3.4	130
AUG 08...	210	80	50	21	49	33	1.5	3.7	160
SEP 12...	220	79	53	21	59	36	1.7	3.9	170

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT									
11...	0	160	1.0	230	12	1.3	.6	8.5	499
NOV									
09...	0	170	.8	210	14	--	.6	7.4	476
DEC									
06...	0	190	1.8	210	10	--	.6	11	523
JAN									
10...	0	170	2.7	230	13	--	.6	11	530
FEB									
14...	0	170	1.7	230	16	--	.7	10	526
MAR									
07...	0	170	3.4	220	10	--	.5	9.4	436
APR									
13...	0	130	.6	180	9.8	1.0	.3	7.6	415
MAY									
04...	0	160	1.0	250	16	.8	.5	9.0	542
JUN									
14...	0	110	1.1	140	6.9	1.0	.3	9.1	331
JUL									
11...	0	110	.8	150	6.9	.2	.3	9.8	333
AUG									
08...	0	130	2.6	160	8.6	.3	.6	8.5	386
SEP									
12...	0	140	.7	180	9.8	.7	.6	8.8	429

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
11...	--	516	.68	18200	--	.38	.01	.39	.02
NOV									
09...	500	497	.65	13200	22	--	--	.07	.04
DEC									
06...	--	514	.71	22600	--	--	--	.34	.06
JAN									
10...	--	527	.72	22600	--	--	--	.27	.10
FEB									
14...	--	531	.72	31700	--	--	--	.20	.02
MAR									
07...	--	514	.59	27200	--	--	--	.22	.03
APR									
13...	--	414	.56	37300	--	.29	.02	.31	.08
MAY									
04...	--	551	.74	36300	--	.17	.02	.19	.04
JUN									
14...	--	344	.45	62500	--	.20	.02	.22	.01
JUL									
11...	--	342	.45	46900	--	.14	.01	.17	.00
AUG									
08...	--	380	.53	32500	--	.05	.01	.06	.00
SEP									
12...	--	420	.58	25700	--	.05	.01	.06	.02

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)
OCT 11...	1.6	1.6	2.0	8.8	.69	19000	--	16	--
NOV 09...	.19	.23	.30	1.3	.04	--	40	4	0
DEC 06...	.00	.05	.39	1.7	.03	--	--	--	--
JAN 10...	.18	.28	.55	2.4	.05	--	--	--	--
FEB 14...	.22	.24	.44	1.9	.05	--	--	--	--
MAR 07...	.19	.22	.44	1.9	.07	--	--	--	--
APR 13...	1.4	1.5	1.8	8.0	.68	1500	80	11	8
MAY 04...	.96	1.0	1.2	5.3	.33	2000	--	4	--
JUN 14...	1.6	1.6	1.8	8.1	.67	60	--	11	--
JUL 11...	.83	.83	1.0	4.4	.21	4200	--	6	--
AUG 08...	.48	.48	.54	2.4	.11	0	--	5	--
SEP 12...	.39	.41	.47	2.1	.03	2100	--	8	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)
OCT 11...	--	400	0	--	--	190	150	--	--
NOV 09...	4	--	--	--	0	--	160	--	--
DEC 06...	--	--	--	--	--	--	170	--	--
JAN 10...	--	--	--	--	--	--	140	--	--
FEB 14...	--	--	--	--	--	--	140	--	--
MAR 07...	--	--	--	--	--	--	140	--	--
APR 13...	3	200	0	0	0	180	130	1	1
MAY 04...	--	200	0	--	--	200	170	1	--
JUN 14...	--	300	5	--	--	140	90	1	--
JUL 11...	--	300	10	--	--	140	90	2	--
AUG 08...	--	100	0	--	--	150	110	1	--
SEP 12...	--	300	0	--	--	160	110	0	--

DATE	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 11...	--	50	--	--	<50	50	--	--
NOV 09...	0	4	0	4	--	<10	<8	--
APR 13...	0	30	30	0	9	32	30	2
MAY 04...	--	8	--	--	5	23	--	--
JUN 14...	--	25	--	--	12	30	--	--
JUL 11...	--	20	--	--	6	14	--	--
AUG 08...	--	10	--	--	4	13	--	--
SEP 12...	--	10	--	--	0	11	--	--

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM SUS-PENDED RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT										
11...	34000	--	--	--	60	--	--	600	--	--
NOV										
09...	740	40	--	--	60	0	70	40	40	0
APR										
13...	15000	50	--	3	60	10	50	440	440	0
MAY										
04...	6800	--	10	--	60	--	--	220	--	--
JUN										
14...	22000	--	--	--	40	--	--	580	--	--
JUL										
11...	7500	--	--	--	80	--	--	170	--	--
AUG										
08...	3700	--	6	--	50	--	--	90	--	--
SEP										
12...	4000	--	5	--	60	--	--	100	--	--

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	MOLYB-DENUM, SUS-PENDED RECOV. (UG/L AS MO)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)
OCT									
11...	.0	--	--	9	--	--	50	--	--
NOV									
09...	.0	.0	.0	9	8	1	<50	<49	1
APR									
13...	.0	.0	.0	3	2	1	25	25	0
MAY									
04...	.0	--	--	3	--	--	6	--	--
JUN									
14...	.2	--	--	6	--	--	30	--	--
JUL									
11...	.0	--	--	3	--	--	13	--	--
AUG									
08...	.0	--	--	5	--	--	8	--	--
SEP									
12...	.0	--	--	7	--	--	10	--	--

DATE	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)
OCT									
11...	2	--	--	<10	--	140	--	--	--
NOV									
09...	1	0	1	--	.7	30	20	10	10
DEC									
06...	--	--	--	--	--	--	--	--	--
JAN									
10...	--	--	--	--	--	--	--	--	--
FEB									
14...	--	--	--	--	--	--	--	--	--
MAR									
07...	--	--	--	--	--	--	--	--	--
APR									
13...	1	0	1	0	.0	130	120	10	--
MAY									
04...	1	--	--	0	--	60	--	--	--
JUN									
14...	1	--	--	0	--	100	--	--	--
JUL									
11...	1	--	--	2	--	60	--	--	--
AUG									
08...	1	--	--	0	--	60	--	--	--
SEP									
12...	1	--	--	0	--	30	--	--	--

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT									
11...	--	--	--	--	--	--	--	4.0	>5.0
NOV									
09...	2.4	6.2	2.6	5.5	2.6	.07	3.4	3.4	--
DEC									
06...	--	--	--	--	--	--	--	3.0	.4
JAN									
10...	--	--	--	--	--	--	--	3.4	.3
FEB									
14...	--	--	--	--	--	--	--	4.9	.7
MAR									
07...	--	--	--	--	--	--	--	3.1	.3
APR									
13...	--	--	--	--	--	--	--	8.7	7.4
MAY									
04...	--	--	--	--	--	--	--	4.1	2.7
JUN									
14...	--	--	--	--	--	--	--	6.9	4.5
JUL									
11...	--	--	--	--	--	--	--	3.8	1.6
AUG									
08...	--	--	--	--	--	--	--	2.9	1.1
SEP									
12...	--	--	--	--	--	--	--	3.6	1.3

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT							
11...	2070	75500	--	--	--	--	--
NOV							
09...	42	1170	--	--	--	--	--
JAN							
10...	28	1190	--	--	--	--	--
FEB							
14...	55	3310	--	--	--	--	--
APR							
13...	1070	96200	68	85	96	99	100
MAY							
04...	526	35200	--	--	--	--	--
JUN							
14...	1310	247000	30	51	85	96	100
JUL							
11...	450	63400	--	--	--	--	--
AUG							
08...	177	14900	46	63	100	--	--
SEP							
12...	216	12900	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)
OCT						
11...	--	--	--	--	--	--
NOV						
09...	5	53	95	99	100	--
APR						
13...	10	41	96	99	99	100
MAY						
04...	--	--	--	--	--	--
JUN						
14...	4	16	98	100	--	--
JUL						
11...	--	--	--	--	--	--
AUG						
08...	1	18	94	100	--	--
SEP						
12...	--	--	--	--	--	--

06330000 MISSOURI RIVER NEAR WILLISTON, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$)		Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Nov. 9	57	1,570	1,260	1.88	0.000	164	Polyethylene strip
Aug. 8	23	1,890	1,810	.050	.000	1,600	Polyethylene strip
Sept.12	29	866	709	.650	.210	241	Polyethylene strip

06330110 MISSOURI RIVER STAGE GAGE NO. 9 AT WILLISTON, ND

LOCATION.--Lat 48°08'13", long 103°36'16", in NE¼NE¼ sec.25, T.154 N., R.101 W., Williams County, Hydrologic Unit 10110101, on left bank levee at southeast edge of Williston 0.5 mi (0.8 km) upstream from Little Muddy Creek, and at mile 1,546.2 (2,487.8 km).

DRAINAGE AREA.--164,500 mi^2 (426,000 km^2), approximately.

PERIOD OF RECORD.--April 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,820.00 ft (554.736 m) National Geodetic Vertical Datum of 1929. Prior to May 13, 1969, at site 900 ft (270 m) downstream. At datum 20.00 ft (6.096 m) lower prior to Apr. 7, 1962.

REMARKS.--Records good. Stage regulated by upstream reservoirs and backwater from Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 34.22 ft (10.430 m) July 25, 28, 1975; minimum daily recorded, 5.44 ft (1.658 m) Aug. 20, 1961, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.51	24.70	25.38	26.74	27.15	26.09	23.41	26.29	---	28.95	26.60
2	---	23.41	25.12	25.45	26.75	27.21	26.23	23.72	26.52	---	28.71	26.69
3	---	23.37	25.36	25.34	26.85	27.20	25.95	24.17	26.51	---	28.93	26.67
4	---	23.42	25.42	25.31	26.94	27.19	25.74	24.07	26.39	---	28.93	26.48
5	---	23.38	25.20	25.49	26.93	27.18	25.60	23.98	26.20	---	28.93	26.40
6	---	23.38	25.38	25.60	26.93	27.19	25.33	23.87	26.01	---	28.90	26.55
7	---	23.38	25.19	25.65	26.94	27.21	25.35	23.90	26.06	---	28.70	26.59
8	---	23.29	24.84	25.65	26.89	27.20	25.43	23.95	26.12	---	28.59	26.27
9	---	23.30	24.37	25.69	26.82	27.10	25.19	24.20	26.29	---	28.71	26.18
10	---	23.31	24.25	25.70	26.88	27.10	25.01	24.30	23.35	---	28.66	26.25
11	---	23.33	24.30	25.75	26.97	27.20	25.08	24.39	26.62	---	28.50	26.96
12	---	23.41	24.37	25.84	27.04	27.28	24.78	24.48	26.85	---	28.48	27.14
13	---	23.39	24.50	25.95	27.10	27.30	24.95	24.59	27.25	---	28.40	26.15
14	---	23.41	24.63	26.11	27.12	27.41	25.05	24.66	27.40	---	28.10	25.65
15	---	23.36	24.74	26.19	27.13	27.54	25.20	---	27.45	---	28.08	26.01
16	---	23.30	24.88	26.20	27.10	27.70	25.38	---	27.18	---	28.20	25.76
17	---	23.24	25.16	26.21	27.05	27.80	25.30	---	26.95	---	27.69	26.02
18	---	23.38	25.44	26.21	27.03	27.99	25.00	24.23	---	---	27.47	26.30
19	23.61	23.23	25.72	26.25	27.08	28.05	24.88	24.25	---	---	27.78	25.58
20	23.60	23.12	26.00	26.31	27.09	28.09	24.83	25.45	---	---	27.72	25.92
21	23.60	22.47	26.15	26.44	27.10	28.19	24.96	26.78	---	29.28	27.90	26.11
22	23.63	22.35	26.10	26.52	27.12	28.54	24.80	27.38	---	29.30	28.10	26.39
23	23.61	22.59	25.91	26.53	27.13	29.03	24.59	27.82	---	29.38	27.60	26.39
24	23.57	23.23	25.79	26.56	27.16	30.28	24.32	28.26	---	29.31	27.40	26.47
25	23.50	23.68	25.77	26.46	27.19	30.79	24.06	27.18	---	29.21	27.60	26.49
26	23.49	23.99	25.78	26.33	27.17	31.60	23.96	26.02	---	29.18	27.17	26.04
27	23.49	24.27	25.70	26.30	27.12	30.69	23.82	25.80	---	29.60	27.12	26.17
28	23.53	24.35	25.40	26.28	27.12	29.86	23.68	25.92	---	28.95	26.93	25.88
29	23.50	24.40	25.21	26.30	---	28.10	23.55	25.96	---	29.32	26.88	25.74
30	23.46	24.48	25.24	26.51	---	26.98	23.49	25.85	---	29.02	26.99	25.90
31	23.49	---	25.29	26.70	---	26.95	---	26.01	---	29.16	27.13	---
TOTAL	---	702.73	781.91	807.21	756.49	869.10	748.40	---	---	---	869.25	787.75
MEAN	---	23.42	25.22	26.04	27.02	28.04	24.95	---	---	---	28.04	26.26
MAX	---	24.48	26.15	26.70	27.19	31.60	26.09	---	---	---	28.95	27.14
MIN	---	22.35	24.25	25.31	26.74	26.95	23.49	---	---	---	26.88	25.58

06331000 LITTLE MUDDY RIVER BELOW COW CREEK NEAR WILLISTON, ND

LOCATION.--Lat 48°17'04", long 103°34'21", in NE¼NW¼ sec.5, T.155 N., R.100 W., Williams County, Hydrologic Unit 10110102, on left bank 37 ft (11 m) downstream from centerline of highway, 1 mi (2 km) downstream from Cow Creek, 4 mi (6 km) upstream from Camp Creek, 10 mi (16 km) northeast of Williston, and 13 mi (21 km) upstream from mouth.

DRAINAGE AREA.--875 mi^2 (2,266 km^2), approximately, of which about 100 mi^2 (260 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,863.18 ft (567.897 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some small diversions for irrigation. Some regulation by Lake Zahl, Fish and Wildlife Service reservoir 22 mi (35 km) upstream.

AVERAGE DISCHARGE.--24 years, 37.1 ft^3/s (1.051 m^3/s), 26,890 acre-ft/yr (33.2 hm^3/yr); median of yearly mean discharges, 29 ft^3/s (0.82 m^3/s), 21,000 acre-ft/yr (26 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,910 ft^3/s (196 m^3/s) Mar. 27, 1960, gage height, 13.57 ft (4.136 m); minimum, 0.20 ft^3/s (0.006 m^3/s) Nov. 27, 1960, Feb. 5, 1963, and June 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft^3/s (7.08 m^3/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)	Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
Mar. 26	--	1,300	36.8	Backwater from ice		July 5	1245	*3,200	90.6	*11.07	3.374

Minimum daily discharge, 4.2 ft^3/s (0.12 m^3/s) Feb. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	11	12	10	4.2	7.2	206	28	221	19	13	8.9
2	9.3	12	12	10	4.2	7.0	122	26	151	33	12	8.5
3	9.4	13	12	10	4.2	6.5	89	25	102	27	12	8.5
4	9.2	14	11	9.8	4.4	6.5	74	28	73	728	12	8.2
5	8.8	13	11	9.6	4.6	6.0	66	33	54	1950	12	7.5
6	8.9	13	10	9.6	4.8	6.0	62	40	44	847	12	7.5
7	9.0	13	10	9.4	4.8	6.0	56	50	38	498	11	8.2
8	8.6	13	9.5	9.0	5.0	6.5	50	70	32	308	10	7.8
9	9.0	12	9.0	8.5	5.0	7.0	46	75	29	170	10	7.5
10	9.0	12	9.0	8.0	5.0	8.0	43	60	26	106	9.6	8.2
11	8.7	12	9.0	7.5	5.0	10	41	48	25	75	9.6	8.9
12	9.0	12	10	7.5	5.0	12	39	41	25	63	9.2	14
13	9.8	13	10	7.5	4.8	25	41	37	23	49	9.2	13
14	9.7	13	11	7.5	4.6	66	39	33	22	42	9.2	13
15	9.6	14	12	7.0	4.6	56	37	30	24	35	9.2	15
16	9.9	13	12	6.0	4.4	43	36	27	23	30	9.2	15
17	9.8	11	12	5.5	4.4	34	36	24	22	27	10	13
18	9.5	13	11	5.0	4.4	32	36	23	23	26	9.6	14
19	9.6	12	11	5.0	4.6	60	35	26	24	24	9.6	15
20	9.7	15	11	5.0	5.0	189	33	28	24	23	9.6	15
21	9.6	11	11	5.0	5.5	606	32	34	22	24	9.2	18
22	9.9	10	11	5.0	6.0	750	29	30	21	23	9.2	22
23	10	10	11	5.5	7.0	616	29	26	21	22	9.6	21
24	10	10	10	5.5	8.0	778	29	23	19	21	9.2	18
25	11	10	10	5.0	7.8	705	29	22	18	19	8.9	16
26	11	10	10	4.8	7.6	960	29	22	18	17	8.9	16
27	11	10	10	4.8	7.4	1090	27	21	18	16	8.9	14
28	11	10	10	4.6	7.2	735	28	21	16	16	8.9	13
29	11	11	10	4.6	---	459	28	22	16	15	8.2	12
30	12	12	10	4.4	---	347	29	30	17	15	8.2	12
31	12	---	10	4.4	---	302	---	96	---	13	8.5	---
TOTAL	304.4	358	327.5	211.0	149.5	7941.7	1476	1099	1191	5281	305.7	378.7
MEAN	9.82	11.9	10.6	6.81	5.34	256	49.2	35.5	39.7	170	9.86	12.6
MAX	12	15	12	10	8.0	1090	206	96	221	1950	13	22
MIN	8.6	10	9.0	4.4	4.2	6.0	27	21	16	13	8.2	7.5
AC-FT	604	710	650	419	297	15750	2930	2180	2360	10470	606	751

CAL YR 1977 TOTAL 3996.3 MEAN 10.9 MAX 48 MIN 4.6 AC-FT 7930
WTR YR 1978 TOTAL 19023.5 MEAN 52.1 MAX 1950 MIN 4.2 AC-FT 37730

06331000 LITTLE MUDDY RIVER BELOW COW CREEK NEAR WILLISTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT								
05...	0915	8.4	2070	8.5	8.0	420	0	65
NOV								
03...	1255	12	2000	8.2	5.0	390	0	52
DEC								
02...	0930	12	2300	7.9	.0	540	0	120
JAN								
06...	0945	9.8	2150	8.3	.0	560	0	110
FEB								
03...	1000	4.1	2100	7.6	.0	560	0	110
MAR								
01...	1535	7.2	1800	7.8	.0	490	0	97
23...	1730	705	360	--	.0	--	--	--
29...	1710	420	400	--	6.0	--	--	--
APR								
05...	0830	65	900	8.5	5.0	230	0	46
MAY								
05...	0730	32	1850	8.3	11.0	470	0	85
JUN								
07...	1405	38	1620	8.5	18.0	430	0	68
JUL								
06...	1210	805	650	7.9	22.0	180	7	36
AUG								
01...	1155	13	1810	8.4	21.0	420	0	71
SEP								
07...	1115	8.9	2070	10.6	17.5	400	0	55

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
05...	63	370	65	7.8	10	695	12	590	3.6
NOV									
03...	63	340	65	7.5	11	647	11	549	6.8
DEC									
02...	58	420	62	7.9	11	898	0	737	18
JAN									
06...	69	400	60	7.4	11	878	0	720	7.0
FEB									
03...	69	380	59	7.0	10	939	0	770	38
MAR									
01...	60	320	58	6.3	8.6	780	0	640	20
23...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
APR									
05...	28	120	52	3.4	8.0	315	0	258	1.6
MAY									
05...	63	310	58	6.2	11	690	0	566	5.5
JUN									
07...	63	240	54	5.0	10	539	0	442	2.7
JUL									
06...	22	70	44	2.3	8.3	211	0	173	4.3
AUG									
01...	59	300	60	6.4	13	683	0	560	4.4
SEP									
07...	64	340	64	7.4	9.1	675	0	554	.0

06331000 LITTLE MUDDY RIVER BELOW COW CREEK NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT								
05...	570	8.2	.1	11	1530	1450	2.08	34.7
NOV								
03...	560	9.4	.2	7.8	1340	1370	1.82	43.4
DEC								
02...	680	9.3	.4	21	1770	1760	2.41	57.3
JAN								
06...	670	9.5	.3	20	1800	1720	2.45	47.6
FEB								
03...	610	13	.4	29	1640	1690	2.23	18.2
MAR								
01...	520	6.8	.3	25	1440	1420	1.96	28.0
23...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
APR								
05...	230	3.9	.1	14	640	606	.87	112
MAY								
05...	560	6.5	.3	15	1400	1390	1.90	121
JUN								
07...	520	4.4	.2	14	1200	1190	1.63	123
JUL								
06...	170	2.5	.1	14	448	428	.61	974
AUG								
01...	490	7.2	.3	19	1350	1300	1.84	47.4
SEP								
07...	590	9.4	.3	9.4	1410	1410	1.92	33.9

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT			
05...	380	100	0
NOV			
03...	240	60	20
DEC			
02...	620	120	80
JAN			
06...	380	60	160
FEB			
03...	290	120	220
MAR			
01...	190	120	220
APR			
05...	270	160	80
MAY			
05...	0	180	0
JUN			
07...	640	160	30
JUL			
06...	590	260	20
AUG			
01...	160	200	10
SEP			
07...	0	0	10

06331570 STONY CREEK NEAR WILLISTON, ND

LOCATION.--Lat 48°09'21", long 103°34'27', in SE¼SE¼SW¼ sec.17, T.154 N., R.100 W., Williams County, Hydrologic Unit 10110101, on left bank at the Hardy Salt Company plant, 0.5 mi (8 km) upstream from bridge on State Highway 1804, 1 mi (1.6 km) upstream from mouth, and 1.9 mi (3.1 km) east of Williston.

DRAINAGE AREA.--148 mi^2 (383 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,820 ft (555 m), from topographic map.

REMARKS.--Records good except those for October to March, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.24 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 26 or 27	--	*450	12.7	[a,b]*11.6	3.54
July 6	0030	166	4.70	6.92	2.109

No flow Jan. 27 to Feb. 20.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.53	.50	.10	.00	.15	71	2.1	8.4	1.4	.24	.12
2	.06	.53	.40	.10	.00	.10	50	1.6	6.6	1.5	.18	.11
3	.06	.48	.40	.15	.00	.10	46	1.7	4.8	1.5	.18	.10
4	.06	.48	.30	.20	.00	.15	45	2.4	3.5	79	.18	.10
5	.06	.38	.30	.20	.00	.20	43	4.2	2.6	109	.18	.10
6	.06	.43	.26	.15	.00	.20	36	4.7	2.2	100	.17	.10
7	.06	.48	.43	.15	.00	.30	21	3.8	2.0	55	.16	.10
8	.06	.48	.53	.15	.00	.40	19	4.8	1.8	33	.14	.11
9	.06	.43	.43	.15	.00	.80	17	5.7	1.4	22	.14	.10
10	.06	.43	.43	.15	.00	1.4	16	3.7	1.2	16	.14	.09
11	.06	.38	.26	.18	.00	1.6	16	2.6	1.1	11	.13	.10
12	.06	.34	.26	.18	.00	1.4	16	6.1	1.5	8.4	.13	.77
13	.10	.30	.30	.15	.00	1.0	15	4.8	1.9	6.0	.13	.73
14	.10	.34	.40	.15	.00	1.0	14	2.6	1.3	3.9	.14	.27
15	.10	.34	.40	.15	.00	1.0	13	2.3	1.7	2.9	.15	.23
16	.12	.38	.50	.10	.00	1.6	12	1.9	2.0	2.0	.12	.22
17	.11	.34	.40	.10	.00	3.0	12	1.7	1.3	1.3	.11	.18
18	.10	.34	.20	.10	.00	5.0	11	.95	1.1	.98	.11	.21
19	.10	.34	.15	.10	.00	10	11	.44	1.2	.90	.10	.28
20	.11	.26	.10	.10	.00	20	9.6	.31	1.6	.81	.11	.59
21	.53	.20	.10	.15	.20	50	8.6	.31	1.6	.66	.11	.73
22	.43	.20	.10	.15	.40	100	7.5	.29	1.3	.59	.12	.59
23	.34	.15	.10	.20	.50	200	8.8	.27	1.1	.53	.13	.59
24	.34	.15	.10	.20	.40	300	8.8	.23	1.1	.48	.13	.60
25	.48	.10	.10	.15	.30	350	8.3	.21	1.2	.43	.12	.60
26	.48	.15	.10	.10	.20	400	6.3	.22	1.7	.38	.12	.55
27	.43	.20	.12	.00	.20	350	3.9	.19	1.6	.28	.11	.50
28	.38	.20	.13	.00	.20	250	3.5	.18	1.3	.26	.12	.50
29	.38	.30	.13	.00	---	122	3.3	.17	.99	.24	.12	.45
30	.43	.40	.13	.00	---	116	2.7	.45	1.1	.24	.11	.40
31	.53	---	.12	.00	---	110	---	11	---	.24	.11	---
TOTAL	6.31	10.06	8.18	3.76	2.40	2397.40	555.3	71.92	62.19	460.92	4.24	10.12
MEAN	.20	.34	.26	.12	.086	77.3	18.5	2.32	2.07	14.9	.14	.34
MAX	.53	.53	.53	.20	.50	400	71	11	8.4	109	.24	.77
MIN	.06	.10	.10	.00	.00	.10	2.7	.17	.99	.24	.10	.09
AC-FT	13	20	16	7.5	4.8	4760	1100	143	123	914	8.4	20

WTR YR 1978 TOTAL 3592.80 MEAN 9.84 MAX 400 MIN .00 AC-FT 7130

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
21...	0900	.65	2150	8.6	14.0	6.5	10.0	87	<3	180	270
NOV											
10...	1015	.44	2400	8.5	-3.5	1.0	12.6	95	<3	92	300
DEC											
07...	1030	.48	2800	8.3	-18.0	.0	11.6	85	10	130	380
JAN											
11...	1445	.18	2510	8.0	-6.0	.0	11.9	88	K6	29	350
MAR											
16...	1315	1.6	1400	8.2	2.0	.5	11.2	85	K5	7000	200
29...	1100	12	--	--	--	4.0	--	--	--	--	--
APR											
11...	0945	17	815	8.3	9.5	5.5	11.3	96	34	290	190
MAY											
03...	1515	1.6	1500	8.3	17.0	15.0	9.8	103	43	--	280
JUN											
09...	1100	1.4	1610	8.4	18.5	19.0	8.6	100	--	--	320
27...	1705	1.4	--	--	--	26.5	--	--	--	--	--
JUL											
12...	0915	9.1	1030	8.3	21.5	22.5	6.8	84	570	640	300
AUG											
01...	1500	.24	1790	8.4	24.0	24.0	9.1	115	24	130	340
SEP											
20...	1315	.80	2190	8.7	14.5	13.0	11.9	120	470	K530	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
21...	0	42	39	420	77	11	8.9	700	30	620	3.1
NOV											
10...	0	45	45	430	75	11	9.2	780	33	700	4.3
DEC											
07...	0	63	55	560	75	12	11	1040	0	850	8.3
JAN											
11...	0	53	52	530	76	12	8.8	1140	0	940	18
MAR											
16...	0	34	28	270	73	8.3	10	520	0	430	5.2
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
11...	0	36	25	110	54	3.4	9.2	270	0	220	2.2
MAY											
03...	0	46	39	250	65	6.6	9.6	530	0	435	4.3
JUN											
09...	0	55	44	280	65	6.8	12	540	14	466	3.5
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
12...	0	51	41	140	50	3.5	10	370	0	303	3.0
AUG											
01...	0	55	50	320	66	7.5	11	660	4	548	4.2
SEP											
20...	0	40	38	430	78	12	11	750	26	658	2.5

K - Results based on colonv count outside the accentmble range (non-ideal colony count).

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 21...	550	6.7	.6	10	1470	1450	1.97	2.58	.00	.10	.86
NOV 10...	560	7.7	.5	9.6	1570	1530	2.08	1.82	.01	.01	.84
DEC 07...	690	9.6	.5	12	1880	1910	2.60	2.48	.07	.08	.66
JAN 11...	630	8.4	.7	17	1750	1860	2.53	.90	.45	.18	.73
MAR 16...	350	5.6	.3	12	951	966	1.31	4.17	.57	.05	.63
29...	--	--	--	--	--	--	--	--	--	--	--
APR 11...	190	3.2	.1	9.9	517	517	.70	23.7	.23	.10	.79
MAY 03...	380	5.6	.3	6.3	1010	998	1.36	4.37	.00	.01	.93
JUN 09...	420	5.6	.3	9.7	1110	1110	1.51	4.35	.00	.05	.74
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	270	4.0	.2	8.7	713	707	.96	17.4	.00	.03	1.2
AUG 01...	440	7.7	.4	12	1250	1230	1.67	.80	.01	.00	.89
SEP 20...	550	8.5	.4	11	1490	1470	2.00	3.18	.01	.09	1.3

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 21...	.96	.96	4.3	.06	.03	--	--	--	--	--	--
NOV 10...	.85	.86	3.8	.05	.01	10	--	2	--	--	200
DEC 07...	.74	.81	3.6	.04	.01	--	--	--	--	--	--
JAN 11...	.91	1.4	6.0	.07	.04	--	--	--	--	--	--
MAR 16...	.68	1.3	5.5	.17	.12	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR 11...	.89	1.1	5.0	.13	.06	0	2	3	5	100	100
MAY 03...	.94	.94	4.2	.07	.02	--	--	--	--	--	--
JUN 09...	.79	.79	3.5	.02	.01	0	3	2	11	300	200
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	1.2	1.2	5.3	.10	.02	--	--	--	--	--	--
AUG 01...	.89	.90	4.0	.04	.00	20	4	3	2	200	200
SEP 20...	1.4	1.4	6.2	.10	.02	--	--	--	--	--	--

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
21...	--	--	--	--	350	--	--	--	--	--
NOV										
10...	--	--	0	--	350	--	1	--	--	4
DEC										
07...	--	--	--	--	390	--	--	--	--	--
JAN										
11...	--	--	--	--	320	--	--	--	--	--
MAR										
16...	--	--	--	--	240	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
APR										
11...	10	0	0	0	130	--	--	0	10	0
MAY										
03...	--	--	--	--	250	--	--	--	--	--
JUN										
09...	120	5	0	1	320	0	0	0	5	0
27...	--	--	--	--	--	--	--	--	--	--
JUL										
12...	--	--	--	--	220	--	--	--	--	--
AUG										
01...	40	0	0	1	330	0	0	10	10	0
SEP										
20...	--	--	--	--	--	--	--	--	--	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
OCT												
21...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
10...	80	--	30	--	--	.0	--	--	--	2	--	2
APR												
11...	30	180	50	150	.0	.0	.01	3	1	1	6	4
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	60	160	20	170	.0	.0	.03	7	6	2	10	5
JUL												
12...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
01...	70	130	60	160	.1	.0	.00	6	4	3	7	5
SEP												
20...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT												
21...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
10...	--	--	0	--	2.7	--	20	--	--	--	--	--
APR												
11...	25	0	0	0	2.0	10	0	11	<5.6	2.2	12	2.9
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	16	0	0	0	1.0	10	20	21	--	--	--	--
JUL												
12...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
01...	83	0	0	0	.0	10	10	9	--	--	--	--
SEP												
20...	--	--	--	--	--	--	--	--	<15	1.2	14	1.5

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)
OCT												
21...	--	--	--	--	--	--	--	40	--	--	--	--
NOV												
10...	--	--	0	--	--	1	--	60	--	2	--	--
DEC												
07...	--	--	--	--	--	--	--	60	--	--	--	--
JAN												
11...	--	--	--	--	--	--	--	40	--	--	--	--
MAR												
16...	--	--	--	--	--	--	--	120	--	--	--	--
APR												
11...	2	4	2	10	4	3	11	100	--	--	0	30
MAY												
03...	--	--	--	--	--	--	--	50	--	--	--	--
JUN												
09...	3	0	0	4	6	4	110	60	4	1	12	50
JUL												
12...	--	--	--	--	--	--	--	40	--	--	--	--
AUG												
01...	2	0	0	16	9	8	0	30	5	0	0	60
SEP												
20...	--	--	--	--	--	--	--	70	--	--	--	--

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT								
21...	10	2.2	72	.13	--	--	--	--
NOV								
10...	9.9	1.2	68	.08	--	--	--	--
DEC								
07...	13	.9	58	.08	--	--	--	--
JAN								
11...	10	--	39	.02	--	--	--	--
MAR								
16...	13	.9	16	.07	--	--	--	--
29...	--	--	361	13	1	2	4	11
APR								
11...	8.8	1.3	42	1.9	--	--	--	--
MAY								
03...	12	1.3	84	.37	--	--	--	--
JUN								
09...	15	1.4	89	.35	--	--	--	--
27...	--	--	43	.16	--	--	--	--
JUL								
12...	10	2.2	72	1.8	--	--	--	--
AUG								
01...	11	.7	46	.03	--	--	--	--
SEP								
20...	9.0	1.9	44	.10	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
MAR							
16...	--	--	--	--	--	--	--
29...	38	49	57	65	71	83	100

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 21,77		NOV 10,77		DEC 7,77		JAN 11,78		MAR 16,78		APR 11,78	
TIME	0900		1015		1030		1445		1315		0945	
TOTAL CELLS/ML	21000		6000		610		210		75		1200	
DIVERSITY: DIVISION	0.7		1.6		0.5		1.2		0.0		1.2	
.CLASS	0.7		1.6		0.5		1.2		0.0		1.2	
..ORDER	1.0		1.9		1.0		1.2		0.0		0.0	
...FAMILY	2.4		2.3		1.8		2.4		1.7		0.0	
....GENUS	3.3		2.7		2.5		2.6		1.7		0.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	3300#	16	--	-	--	-	6	3	--	-	--	-
...CHLOROCOCCACEAE												
....CHLOROCOCCUM	620	3	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1000	5	150	2	220#	36	--	-	--	-	80	7
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....DIMORPHOCOCCUS	4100#	20	--	-	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	1300#	23	38	6	--	-	--	-	--	-
....OOCYSTIS	*	0	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	520	2	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	23	4	--	-	--	-	--	-
....CRUCIGENIA	2900	14	120	2	150#	25	--	-	--	-	--	-
....SCENEDESMUS	4800#	23	640	11	61	10	--	-	--	-	--	-
....TETRASTRUM	410	2	120	2	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	830	4	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	210	1	--	-	45	7	--	-	--	-	280#	24
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	--	-
...VOLVOCACEAE												
....PANDORINA	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	210	1	120	2	61	10	--	-	--	-	720#	62
....MELOSIRA	--	-	*	0	--	-	--	-	--	-	--	-
....SKELETONEMA	210	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	20	2
....COCCONEIS	--	-	--	-	--	-	--	-	11	14	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	6	3	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	6	3	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	6	3	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	8	1	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	*	0	*	0	--	-	13	6	11	14	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	11	14	--	-
...NAVICULACEAE												
....CALONEIS	--	-	--	-	--	-	*	0	--	-	--	-
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	6	3	--	-	--	-
....NAVICULA	--	-	--	-	--	-	57#	26	43#	57	--	-
...NITZSCHIACEAE												
....NITZSCHIA	210	1	--	-	--	-	44#	21	--	-	--	-
...SURIRELLACEAE												
....CYMATOPLEURA	--	-	--	-	--	-	--	-	--	-	--	-
....SURIRELLA	--	-	--	-	8	1	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 21,77		NOV 10,77		DEC 7,77		JAN 11,78		MAR 16,78		APR 11,78	
TIME	0900		1015		1030		1445		1315		0945	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	2200#	37	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	230	4	--	-	--	-	--	-	--	-
....CYLINDROSPERMUM	--	-	--	-	--	-	63#	29	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	200	3	--	-	--	-	--	-	--	-
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....GOMPHOSPHAERIA	520	2	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	*	0	--	-	--	-	--	-	40	3
....PHACUS	520	2	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	210	1	730	12	--	-	6	3	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE	--	-	--	-	--	-	--	-	--	-	20	2
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	210	1	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAY 3,78	JUN 9,78	JUL 12,78	AUG 1,78	SEP 20,78
TIME	1515	1100	0915	1500	1515
TOTAL CELLS/ML	19000	8400	100000	12000	30000
DIVERSITY: DIVISION	1.0	1.8	1.2	1.7	1.0
.CLASS	1.0	1.8	1.2	1.7	1.0
..ORDER	1.2	2.2	2.0	2.1	1.3
...FAMILY	1.2	2.7	2.2	2.6	1.7
....GENUS	1.3	3.2	3.1	3.3	2.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	*	0	--	-	--	-
...CHLOROCOCCACEAE										
....CHLOROCOCCUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	*	0	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	570	3	850	10	1200	1	450	4	1200	3
....CHLORELLA	--	-	160	2	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	2600	3	450	4	--	-
....DIMORPHOCOCCUS	--	-	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	--	-	1000	1	450	4	2300	7
....OOCYSTIS	--	-	*	0	--	-	--	-	260	1
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	190	1	--	-	*	0	170	1	--	-
....TREUBARIA	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	490	6	--	-	--	-	--	-
....CRUCIGENIA	--	-	160	2	1600	2	730	6	17000#	51
....SCENEDESMUS	*	0	1100	14	1600	2	1100	10	2600	7
....TETRASTRUM	--	-	--	-	4000	4	--	-	--	-
..TETRASPORALES										
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	800	1	--	-	--	-
....CHLAMYDOMONAS	380	2	160	2	2600	3	280	2	1400	4
...PHACOTACEAE										
....PHACOTUS	--	-	--	-	--	-	170	1	--	-
...VOLVOCACEAE										
....PANDORINA	--	-	--	-	6400	6	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...NAVICULACEAE										
....ENTOMONEIS	--	-	*	0	--	-	--	-	--	-
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	14000#	74	*	0	4000	4	1500	13	1800	5
....MELOSIRA	--	-	--	-	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	*	0	--	-
....COCCONEIS	--	-	*	0	--	-	*	0	--	-
....RHOICOSPHENIA	*	0	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....SYNEDRA	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	*	0	--	-	--	-	--	-
...NAVICULACEAE										
....CALONEIS	--	-	--	-	--	-	--	-	--	-
....DIPLONEIS	--	-	--	-	*	0	170	1	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-
....NAVICULA	*	0	280	3	*	0	*	0	--	-
...NITZSCHIACEAE										
....NITZSCHIA	750	4	--	-	1200	1	1200	11	*	0
...SURIRELLACEAE										
....CYMATOPLEURA	--	-	*	0	--	-	--	-	--	-
....SURIRELLA	*	0	*	0	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED .

06331570 STONY CREEK NEAR WILLISTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAY 3,78		JUN 9,78		JUL 12,78		AUG 1,78		SEP 20,78	
TIME	1515		1100		0915		1500		1515	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	*	0	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....AGMENELLUM	--	-	--	-	3200	3	3600#	31	--	-
....ANACYSTIS	--	-	2500#	30	29000#	28	840	7	7300#	21
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
....CYLINDROSPERMUM	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	650	8	15000#	15	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....GOMPHOSPHAERIA	--	-	--	-	25000#	25	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	190	1	120	1	--	-	*	0	--	-
....PHACUS	--	-	*	0	--	-	--	-	--	-
....TRACHELOMONAS	3000#	16	1500#	17	1000	1	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
AUG					
01...	20	3.63	1.18	5.67	3.06

06331650 MISSOURI RIVER STAGE GAGE NO. 11 NEAR WILLISTON, ND

LOCATION.--Lat 48°01'55", long 103°31'23", in SE¼ sec.34, T.153 N., R.100 W., Williams County, Hydrologic Unit 10110101, on left bank 10 mi (16 km) southeast of Williston, and at mile 1,534.4 (2,468.8 km).

DRAINAGE AREA.--165,000 mi² (427,000 km²), approximately.

PERIOD OF RECORD.--May 1959 to current year (seasonal).

GAGE.--Water-stage recorder. Datum of gage is 1,810.00 ft (551.688 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 25, 1962, at datum 10.00 ft (3.048 m) lower.

REMARKS.--Records fair. Stage regulated by upstream reservoirs and Lake Sakakawea.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 43.93 ft (13.390 m) July 22, 1975; minimum daily recorded, 5.49 ft (1.673 m) Apr. 29, 1960, present datum.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.37	27.20					---	27.73	31.80	37.03	38.67	36.22
2	27.43	27.22					---	27.90	32.15	37.14	38.47	36.32
3	27.54	---					---	28.28	32.44	37.30	38.58	36.30
4	27.56	---					---	28.25	32.65	37.70	38.62	36.13
5	27.52	---					---	28.21	32.81	37.48	38.60	36.05
6	27.55	---					---	28.14	33.18	37.69	38.56	36.15
7	27.55	---					---	28.19	33.13	37.91	38.43	36.17
8	27.44	---					---	28.21	33.28	37.97	38.34	35.75
9	27.44	---					---	28.33	33.56	38.02	38.39	35.73
10	27.48	---					---	28.47	33.77	38.11	38.31	35.78
11	27.44	---					---	28.53	33.67	38.16	38.17	36.30
12	27.46	---					---	28.61	33.99	38.71	38.20	36.39
13	27.40	---					---	28.72	34.69	38.42	38.14	35.63
14	27.37	---					28.77	28.87	35.46	38.42	37.87	35.25
15	27.37	---					28.86	28.89	34.98	38.57	37.81	35.52
16	27.32	---					28.93	28.88	34.55	38.69	37.89	35.13
17	27.27	---					28.96	28.76	34.81	38.50	37.35	35.53
18	27.27	---					28.85	28.76	35.20	38.69	37.21	35.80
19	27.26	---					28.73	28.87	35.23	38.77	37.40	34.96
20	27.28	---					28.66	29.38	35.45	38.79	37.41	35.38
21	27.28	---					28.71	30.26	35.82	38.85	37.40	35.41
22	27.24	---					28.68	30.78	35.92	38.87	37.59	35.46
23	27.26	---					28.53	31.12	36.01	38.95	37.10	35.36
24	27.21	---					28.39	31.58	36.14	38.90	37.02	35.59
25	27.15	---					28.24	31.32	36.25	38.88	37.11	35.61
26	27.13	---					28.13	30.86	36.23	38.85	36.85	35.43
27	27.13	---					28.02	30.97	36.45	39.09	36.75	35.53
28	27.20	---					27.94	31.16	36.64	38.60	36.58	35.12
29	27.20	---					27.83	31.26	37.01	38.93	36.58	35.19
30	27.19	---					27.75	31.73	37.06	38.79	36.62	35.20
31	27.19	---					---	32.04	---	38.77	36.68	---
TOTAL	847.50	---					---	913.06	1040.33	1189.46	1168.70	1070.41
MEAN	27.34	---					---	29.45	34.68	38.37	37.70	35.68
MAX	27.56	---					---	32.04	37.06	39.09	38.67	36.39
MIN	27.13	---					---	27.73	31.80	37.03	36.58	34.96

06331680 TOBACCO GARDEN CREEK NEAR WATFORD CITY, ND

LOCATION.--Lat 47°59'33", long 103°09'57", McKenzie County, Hydrologic Unit 10110101, in SE¼SW¼ sec. 12, T. 152 N., R.98 W., on left bank at downstream side of bridge on county highway, 14 mi (22 km) northeast of Watford City.

DRAINAGE AREA.--135 mi² (350 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water stage recorder. Datum of gage is 1,930.00 ft (588.264 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,940 ft³/s (54.9 m³/s) Mar. 26, gage height, 16.00 ft (4.877 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 26	2015	*1,940	54.9	*16.00	4.877	Jul. 5	2100	397	11.2	11.32	3.450
Jun. 1	0815	140	3.96	9.89	3.014						

No flow Jan. 28 to Mar. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	1.1	.85	.65	.00	.00	82	2.6	110	5.1	.54	.09
2	7.4	1.1	.80	.65	.00	.00	36	2.2	44	6.6	.48	.15
3	4.8	1.1	.80	.65	.00	.00	17	2.1	20	2.8	.48	.12
4	3.2	1.2	.75	.65	.00	.00	14	2.9	9.9	46	.41	.15
5	2.4	1.1	.75	.60	.00	.00	13	2.8	5.9	245	.32	.15
6	1.9	1.1	.70	.60	.00	.00	16	6.1	3.8	242	.28	.22
7	1.7	1.1	.70	.60	.00	.00	13	7.9	2.8	64	.33	.27
8	1.4	1.1	.70	.55	.00	.10	9.9	44	2.0	21	.29	.22
9	1.2	1.2	.60	.55	.00	.50	7.4	53	1.7	10	.27	.19
10	1.1	1.3	.60	.50	.00	.70	6.3	23	1.5	5.8	.27	.22
11	1.3	1.2	.60	.50	.00	1.0	6.0	8.9	1.3	3.7	.27	.45
12	1.4	1.3	.60	.45	.00	.90	5.9	6.2	1.2	2.7	.27	.87
13	1.3	1.2	.65	.45	.00	.90	6.8	5.3	.89	1.6	.22	.70
14	1.5	1.2	.70	.45	.00	.80	11	5.4	.92	1.3	.27	1.0
15	1.6	1.2	.80	.40	.00	.80	9.3	4.2	1.3	.98	.19	1.0
16	1.3	1.2	.80	.30	.00	.70	7.9	3.1	1.9	.53	.22	1.0
17	1.3	1.1	.80	.25	.00	.70	6.8	2.4	1.7	.47	.32	.70
18	1.6	1.1	.80	.20	.00	2.0	5.4	2.0	1.5	.50	.27	.87
19	1.5	1.0	.80	.15	.00	16	5.0	2.1	1.6	.45	.32	1.6
20	1.3	1.0	.75	.10	.00	110	4.6	1.6	1.5	.45	.32	2.0
21	1.1	.95	.75	.10	.00	251	4.1	1.5	1.1	.51	.32	3.2
22	.95	.90	.75	.10	.00	750	3.5	1.8	.96	.46	.32	2.4
23	1.1	.80	.75	.10	.00	877	3.2	2.0	.70	.45	.38	1.6
24	1.1	.70	.75	.10	.00	509	3.0	1.9	.90	.41	.32	1.2
25	1.1	.60	.70	.10	.00	510	4.5	1.8	1.2	.48	.27	.95
26	1.0	.60	.70	.05	.00	1300	5.1	1.9	13	.51	.12	.87
27	.98	.65	.70	.02	.00	996	3.9	1.6	55	.51	.19	.45
28	1.1	.65	.70	.00	.00	318	3.3	1.0	26	.54	.27	.45
29	1.2	.70	.70	.00	---	135	2.6	1.2	10	.57	.09	.45
30	1.1	.80	.70	.00	---	101	2.4	2.9	5.8	.57	.05	.45
31	1.0	---	.65	.00	---	125	---	44	---	.54	.02	---
TOTAL	63.93	30.25	22.40	9.82	.00	6007.10	318.9	249.4	330.07	666.53	8.69	23.99
MEAN	2.06	1.01	.72	.32	.000	194	10.6	8.05	11.0	21.5	.28	.80
MAX	13	1.3	.85	.65	.00	1300	82	53	110	245	.54	3.2
MIN	.95	.60	.60	.00	.00	.00	2.4	1.0	.70	.41	.02	.09
AC-FT	127	60	44	19	.00	11920	633	495	655	1320	17	48

CAL YR 1977 TOTAL 1369.79 MEAN 3.75 MAX 180 MIN .15 AC-FT 2720
WTR YR 1978 TOTAL 7731.08 MEAN 21.2 MAX 1300 MIN .00 AC-FT 15330

06331680 TOBACCO GARDEN CREEK NEAR WATFORD CITY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT								
06...	1400	1.7	1430	9.2	7.0	110	0	18
NOV								
04...	1250	1.2	2200	8.3	4.5	210	0	52
DEC								
02...	1510	.79	2800	8.2	1.5	260	0	48
JAN								
06...	1545	.58	2750	8.2	.0	270	0	44
MAR								
10...	1200	.56	3200	8.4	.0	340	0	55
20...	1615	57	260	--	.0	--	--	--
21...	1415	70	260	--	1.0	--	--	--
24...	1505	460	240	--	1.0	--	--	--
27...	1640	854	220	--	3.0	--	--	--
31...	1240	113	470	--	9.0	--	--	--
APR								
04...	1535	13	775	--	8.0	--	--	--
06...	1450	16	940	8.5	8.0	170	0	37
MAY								
04...	1135	3.2	2300	8.6	13.0	260	0	45
JUN								
09...	0940	1.7	1480	8.7	18.5	160	0	29
JUL								
07...	1350	48	645	8.0	22.0	100	0	24
31...	1355	.55	2150	8.5	24.0	200	0	39
SEP								
08...	1145	.29	2880	11.2	20.5	150	0	28

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT									
06...	16	280	84	12	6.5	487	0	399	.5
NOV									
04...	20	530	84	16	9.5	958	23	824	8.1
DEC									
02...	34	690	85	19	12	1230	19	1040	13
JAN									
06...	39	700	84	19	9.8	1150	0	943	12
MAR									
10...	49	770	83	18	11	1160	0	951	7.4
20...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
06...	19	160	66	5.3	7.0	278	0	228	2.2
MAY									
04...	36	500	80	13	9.5	920	0	755	3.7
JUN									
09...	21	310	80	11	9.8	561	0	460	1.8
JUL									
07...	9.7	100	66	4.4	8.5	258	0	212	4.1
31...	25	480	83	15	8.6	796	4	660	4.1
SEP									
08...	19	680	90	24	5.7	1040	17	881	.0

06331680 TOBACCO GARDEN CREEK NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT								
06...	310	3.7	.1	14	922	889	1.25	4.23
NOV								
04...	560	6.4	1.0	14	1660	1690	2.26	5.38
DEC								
02...	720	5.8	.7	17	2130	2150	2.90	4.58
JAN								
06...	780	6.6	.6	19	2220	2170	3.02	3.48
MAR								
10...	1000	8.5	.5	22	2550	2490	3.47	3.86
20...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
APR								
04...	--	--	--	--	--	--	--	--
06...	270	3.4	.1	12	650	646	.88	28.1
MAY								
04...	590	4.0	.4	10	1670	1650	2.27	14.4
JUN								
09...	380	1.9	.3	15	1040	1040	1.41	4.77
JUL								
07...	120	1.5	.1	15	451	407	.61	58.4
31...	560	3.8	.3	19	1630	1530	2.22	2.42
SEP								
08...	720	5.3	.4	14	2040	2000	2.77	1.60

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT			
06...	380	630	0
NOV			
04...	570	240	30
DEC			
02...	620	140	60
JAN			
06...	480	0	160
MAR			
10...	1200	220	600
APR			
06...	270	40	50
MAY			
04...	340	40	10
JUN			
09...	440	280	30
JUL			
07...	490	380	30
31...	200	300	30
SEP			
08...	130	40	0

06331850 BEAVER CREEK NEAR RAY, ND

LOCATION.--Lat 48°10'52", long 103°01'26", in SW¼SE¼SE¼ sec.33, T.155 N., R.96 W., Williams County, Hydrologic Unit 10110101, on left bank 40 ft (12 m) upstream from bridge on North Dakota State Highway 1804, 12 mi (19 km) southeast of Ray, and 1.4 mi (2.3 km) upstream from mouth.

DRAINAGE AREA.--102 mi^2 (264 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,870 ft (570 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 23	--	ice jam		*Unknown		July 4	1245	*279	7.90	7.58	2.310
Mar. 23	--	207	5.86	ice jam							

No flow March 10-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.97	.80	.60	.30	.20	50	4.7	19	1.4	.64	.69
2	1.2	1.0	.80	.60	.30	.20	43	4.0	15	1.2	.57	.61
3	.99	.95	.80	.60	.30	.20	40	3.3	6.0	1.2	.72	.66
4	.92	.92	.80	.60	.20	.20	36	4.1	4.0	130	.95	.66
5	.82	.85	.70	.60	.20	.20	36	5.1	2.0	86	1.0	.58
6	.75	.88	.60	.60	.20	.10	36	5.8	.57	27	1.1	.58
7	.79	.95	.50	.60	.20	.10	29	9.1	.73	14	1.0	.64
8	.92	1.0	.50	.60	.20	.10	19	14	1.0	10	.82	.64
9	.93	1.1	.40	.60	.20	.10	16	18	1.4	7.0	.79	.61
10	.95	.92	.40	.60	.20	.00	12	11	1.8	5.0	.72	.61
11	1.1	.92	.40	.60	.20	.00	11	7.2	2.0	3.0	.85	.72
12	.99	.88	.40	.50	.20	.00	13	5.9	1.9	2.2	.82	1.6
13	1.0	.85	.50	.50	.20	.00	13	4.7	1.9	1.8	.82	1.3
14	.99	.92	.50	.50	.20	.00	22	4.2	2.1	1.6	.72	.85
15	.95	1.1	.60	.50	.20	.00	13	3.6	2.8	1.4	.69	.72
16	.95	1.0	.60	.50	.20	.00	9.8	2.9	3.2	1.2	.55	.75
17	.88	.90	.60	.50	.20	.00	9.8	2.6	3.8	1.6	.66	.69
18	.85	.80	.60	.50	.20	.50	11	2.4	4.4	1.4	.66	1.1
19	.85	.70	.60	.50	.20	2.0	9.3	3.0	4.6	1.4	.69	1.2
20	.82	.60	.60	.50	.20	5.0	7.4	4.6	4.6	1.1	.61	.85
21	.88	.60	.60	.50	.20	40	7.1	4.6	4.3	1.5	.61	1.1
22	.92	.50	.60	.50	.20	90	6.6	3.0	4.3	1.6	.72	1.0
23	.92	.40	.60	.40	.20	200	7.2	2.3	4.0	1.4	.79	.95
24	1.0	.40	.60	.40	.20	70	8.2	1.8	3.7	1.4	.69	.85
25	1.0	.40	.60	.40	.20	90	7.4	2.4	3.0	1.2	.69	.88
26	.99	.50	.60	.40	.20	110	5.4	2.9	4.4	1.1	.72	.88
27	.92	.60	.60	.40	.20	85	4.2	3.0	2.0	.89	.72	.82
28	.82	.70	.60	.30	.20	88	6.9	4.1	2.0	.82	.66	.88
29	.85	.80	.60	.30	---	128	6.8	3.6	1.6	.75	.61	.95
30	.85	.80	.60	.30	---	90	5.6	4.5	1.4	.72	.64	.99
31	.85	---	.60	.30	---	70	---	11	---	.64	.69	---
TOTAL	28.75	23.91	18.30	15.30	5.90	1069.90	503.7	163.4	113.50	311.52	22.92	25.36
MEAN	.93	.80	.59	.49	.21	34.5	16.8	5.27	3.78	10.0	.74	.85
MAX	1.2	1.1	.80	.60	.30	200	50	18	19	130	1.1	1.6
MIN	.75	.40	.40	.30	.20	.00	4.2	1.8	.57	.64	.55	.58
AC-FT	57	47	36	30	12	2120	999	324	225	618	45	50

WTR YR 1978 TOTAL 2302.46 MEAN 6.31 MAX 200 MIN .00 AC-FT 4570

06331850 BEAVER CREEK NEAR RAY, ND--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 20...	1445	.85	2200	8.2	16.5	7.5	11.8	106	K27	K460	460
NOV 09...	1300	1.1	2200	8.2	2.5	2.0	11.7	91	0	110	490
DEC 06...	1415	.56	2400	8.0	-19.5	.0	8.4	61	K13	290	540
JAN 12...	0930	.52	2110	8.0	-6.0	.0	10.0	74	40	74	510
MAR 28...	1230	78	523	8.0	11.5	3.5	12.8	102	50	2200	140
APR 11...	1530	11	1280	8.3	12.5	7.0	11.1	97	11	K11	350
MAY 03...	0930	3.1	1910	8.6	17.0	13.0	8.4	87	--	--	480
JUN 08...	1345	1.2	1920	8.4	17.5	18.0	9.7	109	--	--	460
27...	1440	2.4	--	--	29.0	25.0	--	--	--	--	--
JUL 12...	1400	2.1	1540	8.2	19.0	22.5	7.7	95	550	720	370
AUG 02...	1415	.57	1890	8.5	13.0	19.0	8.6	100	160	320	420
SEP 21...	1450	1.1	1920	8.6	17.5	12.5	10.7	107	--	73	400

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT 20...	0	67	70	360	63	7.3	9.1	670	0	550	6.8
NOV 09...	0	75	74	340	60	6.7	9.3	690	0	566	7.0
DEC 06...	0	88	77	380	60	7.1	11	770	0	630	12
JAN 12...	0	82	74	350	59	6.7	9.6	720	0	590	12
MAR 28...	0	28	18	56	44	2.0	8.0	200	0	164	3.2
APR 11...	0	67	45	160	49	3.7	11	440	0	360	3.5
MAY 03...	0	74	71	310	58	6.2	11	590	10	500	2.5
JUN 08...	0	67	71	320	60	6.5	11	610	7	520	4.0
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	0	64	51	240	56	5.4	10	530	0	435	5.4
AUG 02...	0	59	65	330	63	7.1	10	590	8	510	3.1
SEP 21...	0	64	59	330	63	7.2	9.4	570	10	500	2.4

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06331850 BEAVER CREEK NEAR RAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
20...	600	8.8	.1	12	1430	1460	1.99	3.35	.01	.00	.44
NOV											
09...	610	9.1	.3	14	1490	1470	2.00	4.37	.01	.00	.42
DEC											
06...	680	10	.3	19	1670	1640	2.23	2.48	.04	.06	.29
JAN											
12...	640	8.9	.5	19	1490	1540	2.09	2.16	.07	.18	.54
MAR											
28...	100	5.4	.1	9.5	335	324	.44	68.7	.43	.20	.80
APR											
11...	310	9.8	.2	15	843	835	1.14	24.8	.12	.06	.58
MAY											
03...	570	12	.3	9.0	1350	1360	1.85	11.4	.01	.01	.80
JUN											
08...	560	14	.3	8.4	1350	1360	1.85	4.41	.01	.04	.49
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
12...	410	9.6	.3	17	1100	1060	1.44	6.12	.00	.03	1.2
AUG											
02...	590	9.9	.4	11	1390	1380	1.88	2.12	.01	.00	.68
SEP											
21...	600	9.4	.2	12	1360	1380	1.88	4.10	.00	.01	.47

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT											
20...	.44	.45	2.0	.02	.03	--	--	--	--	--	--
NOV											
09...	.42	.43	1.9	.02	.00	0	--	2	--	--	300
DEC											
06...	.35	.39	1.7	.04	.02	--	--	--	--	--	--
JAN											
12...	.72	.79	3.5	.04	.03	--	--	--	--	--	--
MAR											
28...	1.0	1.4	6.3	.24	.14	--	--	--	--	--	--
APR											
11...	.64	.76	3.4	.07	.04	0	3	5	5	100	100
MAY											
03...	.81	.82	3.6	.07	.03	--	--	--	--	--	--
JUN											
08...	.53	.54	2.4	.01	.01	0	3	2	19	300	200
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
12...	1.2	1.2	5.3	.12	.04	--	--	--	--	--	--
AUG											
02...	.68	.69	3.1	.03	.00	0	--	2	--	--	100
SEP											
21...	.48	.48	2.1	.03	.01	--	--	--	--	--	--

06331850 BEAVER CREEK NEAR RAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT 20...	--	--	--	--	300	--	--	--	--	--
NOV 09...	--	--	0	--	290	--	1	--	--	0
DEC 06...	--	--	--	--	320	--	--	--	--	--
JAN 12...	--	--	--	--	260	--	--	--	--	--
MAR 28...	--	--	--	--	110	--	--	--	--	--
APR 11...	30	10	10	0	200	--	--	0	0	0
MAY 03...	--	--	--	--	290	--	--	--	--	--
JUN 08...	80	0	10	1	320	0	0	0	5	0
27...	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	310	--	--	--	--	--
AUG 02...	--	--	0	--	330	--	0	--	--	0
SEP 21...	--	--	--	--	280	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT 20...	--	--	--	--	--	--	--	80	--	--
NOV 09...	--	--	0	--	--	0	--	40	--	1
DEC 06...	--	--	--	--	--	--	--	40	--	--
JAN 12...	--	--	--	--	--	--	--	40	--	--
MAR 28...	--	--	--	--	--	--	--	70	--	--
APR 11...	2	5	2	6	3	0	8	70	--	--
MAY 03...	--	--	--	--	--	--	--	30	--	--
JUN 08...	5	0	0	9	11	5	150	10	6	2
JUL 12...	--	--	--	--	--	--	--	40	--	--
AUG 02...	--	--	0	--	--	7	--	30	--	0
SEP 21...	--	--	--	--	--	--	--	30	--	--

06331850 BEAVER CREEK NEAR RAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV, FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV, FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV, FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)
OCT 20...	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	100	--	50	--	--	.0	--	--
APR 11...	0	50	50	100	100	270	.0	.0	.03	3
MAY 03...	--	--	--	--	--	--	--	--	--	--
JUN 08...	20	80	90	60	30	630	.0	.0	.03	5
JUL 12...	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	90	--	30	--	--	.0	--	--
SEP 21...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, RECOV, FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, RECOV, FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	VANADIUM, DISSOLVED (UG/L AS V) (01085)
OCT 20...	--	--	--	--	--	--	--	--	--
NOV 09...	--	1	--	1	--	--	0	--	.0
APR 11...	1	1	10	6	28	0	0	0	.0
MAY 03...	--	--	--	--	--	--	--	--	--
JUN 08...	24	0	11	2	34	0	0	0	.0
JUL 12...	--	--	--	--	--	--	--	--	--
AUG 02...	--	0	--	3	--	--	0	--	.0
SEP 21...	--	--	--	--	--	--	--	--	--

DATE	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV, FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP, TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP, TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP, TOTAL (PCI/L AS SR/YT-90) (80060)
OCT 20...	--	--	--	--	--	--	--	--	--
NOV 09...	--	10	--	--	--	--	--	--	--
APR 11...	10	0	25	27	<.4	16	.9	--	--
MAY 03...	--	--	--	--	--	--	--	--	--
JUN 08...	20	20	37	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--
AUG 02...	--	10	--	--	--	--	--	--	--
SEP 21...	--	--	--	<12	<.4	7.5	<.4	6.9	<.4

06331850 BEAVER CREEK NEAR RAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 20...	11	.5	46	.11	--	--	--
NOV 09...	7.2	.4	44	.13	--	--	--
DEC 06...	7.0	.5	48	.07	--	--	--
JAN 12...	5.2	.5	99	.14	--	--	--
MAR 28...	11	3.0	97	21	70	81	87
APR 11...	9.4	--	10	.30	--	--	--
MAY 03...	8.9	.7	76	.64	--	--	--
JUN 08...	10	.4	56	.18	--	--	--
27...	--	--	15	.10	--	--	--
JUL 12...	10	2.3	113	.65	--	--	--
AUG 02...	8.6	.8	38	.06	--	--	--
SEP 21...	17	.5	15	.04	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT 20...	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--
JAN 12...	--	--	--	--	--	--
MAR 28...	93	94	96	98	99	100
APR 11...	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--
JUN 08...	--	--	--	--	--	--
27...	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--
SEP 21...	--	--	--	--	--	--

06331850 BEAVER CREEK NEAR RAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 20,77	NOV 9,77	DEC 6,77	JAN 12,78	MAR 28,78	APR 11,78
TIME	1445	1300	1415	0930	1230	1530
TOTAL CELLS/ML	340	100	160	320	1400	2500
DIVERSITY: DIVISION	0.8	1.5	1.5	1.4	1.1	1.0
.CLASS	0.8	1.5	1.5	1.4	1.1	1.4
..ORDER	1.4	1.5	1.7	1.4	1.1	2.0
...FAMILY	2.3	2.5	2.6	1.7	1.6	2.2
....GENUS	2.4	2.5	2.8	2.0	2.4	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHLOROCOCCACEAE												
....CHLOROCOCCUM	15	4	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	23	7	--	-	--	-	6	2	41	3	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	8	2	19#	19	--	-	18	6	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	24	7	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	6	2	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	23	14	--	-	--	-	--	-
....CRUCIGENIA	--	-	15	14	--	-	24	7	--	-	--	-
....SCENEDESMUS	31	9	--	-	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	8	2	--	-	11	7	--	-	--	-	300	12
..CHLOROCOCCALES												
...OOCYSTACEAE												
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	46	13	--	-	--	-	--	-	--	-	61	2
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	5	5	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	41	3	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	14	1	--	-
...DIATOMACEAE												
....DIATOMA	--	-	5	5	11	7	--	-	14	1	--	-
...FRAGILARIACEAE												
....FRAGILARIA	8	2	--	-	--	-	--	-	150	11	150	6
....SYNEDRA	--	-	5	5	11	7	6	2	14	1	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	14	1	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	14	1	--	-
....NAVICULA	38	11	29#	29	23	14	6	2	41	3	120	5
...NITZSCHIACEAE												
....NITZSCHIA	170#	49	--	-	300#	21	6	2	27	2	120	5
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	61	2
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	14	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06331850 BEAVER CREEK NEAR RAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 20,77		NOV 9,77		DEC 6,77		JAN 12,78		MAR 28,78		APR 11,78	
TIME	1445		1300		1415		0930		1230		1530	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	210#	65	--	-	300	12
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	300#	22	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	670#	49	1300#	54
....SPIRULINA	--	-	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	6	4	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	24#	24	40#	25	18	6	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	30	1
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	14	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

BEAVER CREEK BASIN

06331850 BEAVER CREEK NEAR RAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAY 3,78	JUN 8,78	JUL 12,78	AUG 2,78	SEP 21,78
TIME	0930	1345	1400	1415	1450
TOTAL CELLS/ML	3400	280	24000	4400	520
DIVERSITY: DIVISION	2.0	0.9	1.6	1.8	1.0
.CLASS	2.0	0.9	1.8	1.9	1.0
..ORDER	2.7	1.2	2.3	2.5	1.2
...FAMILY	3.2	1.6	3.0	3.0	2.2
....GENUS	3.3	1.8	3.7	3.6	2.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHLOROCOCCACEAE										
....CHLOROCOCCUM	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	1100	5	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	280	1	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	68	2	--	-	980	4	24	1	--	-
....CHODATELLA	--	-	--	-	280	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	1500	6	--	-	--	-
....KIRCHNERIELLA	23	1	--	-	2100	9	520	12	29	6
....OOCYSTIS	--	-	--	-	140	1	--	-	--	-
....TETRAEDRON	--	-	--	-	140	1	24	1	--	-
....TREUBARIA	--	-	--	-	140	1	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	2200	9	480	11	--	-
....SCENEDESMUS	140	4	--	-	840	3	550	13	120#	22
....TETRASTRUM	--	-	--	-	1100	5	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	430	13	--	-	1300	5	95	2	--	-
..CHLOROCOCCALES										
...OOCYSTACEAE										
....GLOEOACTINIUM	91	3	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	270	8	15	5	3100	13	910#	21	14	3
....SKELETONEMA	--	-	--	-	--	-	120	3	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	15	5	--	-	--	-	--	-
....COCCONEIS	45	1	--	-	--	-	95	2	--	-
....RHOICOSPHENIA	68	2	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	140	4	29	11	--	-	24	1	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	24	1	14	3
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	--	-	24	1	--	-
....GYROSIGMA	23	1	15	5	--	-	--	-	--	-
....NAVICULA	430	13	29	11	280	1	140	3	140#	28
...NITZSCHIACEAE										
....NITZSCHIA	110	3	--	-	140	1	95	2	190#	36
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	2400	10	120	3	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	23	1	--	-	140	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06331850 BEAVER CREEK NEAR RAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

(CONTINUED)

DATE TIME	MAY 3,78 0930		JUN 8,78 1345		JUL 12,78 1400		AUG 2,78 1415		SEP 21,78 1450	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCACEAE										
....ANACYSTIS	160	5	180#	63	5200#	21	520	12	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	800#	23	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	290	7	--	-
....SPIRULINA	--	-	--	-	--	-	--	-	14	3
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	560	2	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	140	1	72	2	--	-
....LEPOCINCLIS	--	-	--	-	--	-	24	1	--	-
....TRACHELOMONAS	610#	18	--	-	140	1	240	5	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 03...	22	1.91	.100	1.81	1.18
AUG 02...	22	1.50	1.20	2.36	1.02

06332000 WHITE EARTH RIVER AT WHITE EARTH, ND

LOCATION.--Lat 48°22'35", long 102°46'00", in SE¼SW¼ sec.36, T.157 N., R.94 W., Mountrail County, Hydrologic Unit 10110101, 35 ft (11 m) upstream from bridge on county highway, and 0.2 mi (0.3 km) east of White Earth.

DRAINAGE AREA.--780 mi² (2,020 km²), approximately, of which about 290 mi² (750 km²) is probably noncontributing.

PERIOD OF RECORD.--August 1954 to current year.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,070.00 ft (630.936 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1959, nonrecording gages at site 0.2 mi (0.3 km) upstream at datum 1.64 ft (0.500 m) higher.

REMARKS.--Records good except those for the winter period, which is fair. Flow regulated by White Earth Reservoir 12 mi (19 km) upstream beginning August 1970, capacity, 1,600 acre-ft (1.97 hm³).

AVERAGE DISCHARGE.--24 years, 27.8 ft³/s (0.787 m³/s), 20,140 acre-ft/yr (24.8 hm³/yr); median of yearly mean discharges, 15 ft³/s (0.42 m³/s), 10,900 acre-ft/yr (13 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,370 ft³/s (67.1 m³/s) Mar. 16, 1972, gage height, 18.19 ft (5.544 m); no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1929 reached a stage of 21.8 ft (6.64 m) former site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 900 ft³/s (25.5 m³/s) Mar. 22, gage height, 13.41 ft (4.087 m); minimum daily, 1.2 ft³/s (0.034 m³/s) Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	4.6	3.8	4.0	2.7	2.8	210	23	34	17	9.2	2.4
2	8.5	4.6	3.5	4.0	2.6	2.8	150	22	31	17	8.3	2.3
3	7.5	4.2	3.5	4.0	2.5	2.8	133	20	34	17	7.7	2.1
4	7.0	3.9	3.0	4.0	2.5	2.8	128	22	31	36	7.4	1.9
5	6.3	4.0	3.0	3.8	2.5	2.8	119	23	33	87	7.2	1.7
6	6.0	4.4	3.0	3.8	2.5	3.0	109	28	36	86	6.9	1.8
7	5.5	4.7	2.5	3.8	2.5	3.0	99	28	29	56	6.3	1.3
8	5.5	5.2	2.5	.37	2.3	3.0	93	68	25	34	5.8	1.6
9	5.4	5.4	2.0	3.6	2.2	3.0	86	56	23	27	5.6	1.7
10	5.2	5.2	1.5	3.5	2.2	5.0	83	41	22	25	5.4	1.2
11	5.5	4.7	2.0	3.5	2.2	8.0	77	36	21	23	4.8	1.6
12	4.8	4.4	3.0	3.5	2.0	10	75	34	22	22	4.3	16
13	4.4	4.0	4.0	3.5	2.0	15	78	33	21	21	4.5	65
14	4.0	4.0	5.0	3.5	2.0	10	73	31	18	21	4.3	25
15	4.0	4.4	6.0	3.2	2.0	8.0	66	30	20	20	5.4	12
16	4.0	5.1	6.5	3.0	2.2	6.0	58	27	20	20	5.4	8.2
17	3.7	4.6	6.5	2.8	2.5	6.0	54	26	18	18	4.8	5.8
18	3.7	3.9	6.0	2.8	2.5	8.0	61	25	18	17	5.2	7.5
19	3.5	2.9	6.0	2.8	2.6	20	51	30	18	18	4.2	16
20	3.4	2.6	5.5	2.8	2.6	60	47	35	16	18	3.5	12
21	3.5	2.4	5.5	2.8	2.6	300	43	31	16	18	3.0	10
22	3.7	2.3	5.5	2.8	2.8	700	38	28	16	17	2.9	9.3
23	3.7	2.3	5.0	2.8	3.0	450	37	16	15	16	3.2	8.6
24	3.9	2.3	5.0	2.8	3.5	280	36	17	14	14	2.9	7.7
25	4.0	2.3	5.0	2.8	3.4	400	34	20	14	14	3.5	7.5
26	3.9	2.3	4.5	2.8	3.2	774	31	22	22	11	5.6	7.1
27	3.5	2.3	4.5	2.7	3.0	800	28	22	28	11	5.2	6.4
28	3.5	2.8	4.5	2.7	2.8	595	28	20	20	11	3.7	6.3
29	3.7	3.5	4.5	2.7	---	443	27	19	17	10	3.0	6.0
30	4.2	4.0	4.0	2.7	---	348	25	19	16	10	2.6	5.7
31	4.7	---	4.0	2.7	---	295	---	32	---	9.1	2.5	---
TOTAL	150.2	113.3	130.8	96.57	71.4	5567.0	2177	888	664	741.1	154.3	261.7
MEAN	4.85	3.78	4.22	3.12	2.55	180	72.6	28.5	22.1	23.9	4.98	8.72
MAX	10	5.4	6.5	4.0	3.5	800	210	68	36	87	9.2	65
MIN	3.4	2.3	1.5	.37	2.0	2.8	25	16	14	9.1	2.5	1.2
AC-FT	298	225	259	192	142	11040	4320	1750	1320	1470	306	519

CAL YR 1977 TOTAL 2132.77 MEAN 5.84 MAX 72 MIN .12 AC-FT 4230
WTR YR 1978 TOTAL 11011.37 MEAN 30.2 MAX 800 MIN .37 AC-FT 21840

06332515 BEAR DEN CREEK NEAR MANDAREE, ND
(Hydrologic bench-mark station)

LOCATION.--Lat 47°47'14", long 102°46'05", in NW¼ sec.30, T.150 N., R.94 W., McKenzie County, Hydrologic Unit 10110101, on right bank 0.5 mi (0.8 km) upstream from county highway culvert, and 5.5 mi (8.8 km) northwest of Mandaree.

DRAINAGE AREA.--74 mi² (192 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,947.58 ft (593.622 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--12 years, 9.47 ft³/s (0.268 m³/s), 6,860 acre-ft/yr (8.46 hm³/yr); median of yearly mean discharges, 8.6 ft³/s (0.24 m³/s), 6,200 acre-ft/yr (7.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,840 ft³/s (80.4 m³/s) Mar. 13, 1972, gage height, 9.02 ft (2.749 m); maximum gage height, 10.03 ft (3.057 m) Apr. 6, 1969; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 26	--	*1,300	37	*7.4	2.26	May 31	1600	269	7.62	4.26	1.298

No flow Jan. 26 to Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.30	.40	.20	.00	.00	61	1.5	70	4.9	.30	.20
2	.53	.30	.40	.20	.00	.00	22	1.5	8.1	3.4	.25	.18
3	.46	.30	.37	.20	.00	.00	17	1.6	2.3	2.7	.23	.18
4	.43	.27	.37	.20	.00	.00	24	3.1	1.6	5.8	.23	.18
5	.40	.27	.34	.20	.00	.00	25	4.9	1.2	27	.22	.18
6	.33	.30	.30	.15	.00	.00	29	3.5	.90	5.8	.17	.18
7	.28	.35	.30	.15	.00	.00	18	5.8	.80	3.6	.18	.18
8	.24	.30	.25	.15	.00	.00	12	46	.70	3.4	.18	.18
9	.26	.30	.20	.15	.00	.00	8.7	17	.60	3.1	.18	.18
10	.31	.30	.15	.15	.00	1.0	8.5	6.1	.80	2.9	.16	.40
11	.30	.30	.15	.15	.00	2.0	5.5	3.5	1.0	2.9	.16	.75
12	.30	.30	.20	.15	.00	2.0	5.1	2.9	.95	3.1	.16	6.3
13	.30	.30	.25	.15	.00	3.0	5.6	2.9	.92	2.9	.16	3.1
14	.33	.30	.30	.15	.00	3.0	3.6	2.0	.83	2.9	.16	1.5
15	.33	.33	.30	.10	.00	3.0	3.0	1.8	1.3	3.1	.16	.85
16	.33	.30	.35	.10	.00	3.0	3.2	1.5	1.7	2.7	.16	.62
17	.30	.30	.35	.10	.00	4.0	3.4	1.3	1.3	2.7	.16	.52
18	.30	.30	.35	.10	.00	10	3.7	1.2	1.1	2.7	.16	1.8
19	.33	.27	.30	.05	.00	20	3.1	1.1	1.0	3.2	.16	2.5
20	.33	.25	.25	.05	.00	30	2.0	1.0	.92	2.9	.16	1.4
21	.33	.25	.25	.05	.00	40	1.6	.90	.88	2.7	.16	.64
22	.30	.20	.25	.05	.00	60	1.3	.80	.88	2.3	.16	.48
23	.30	.20	.25	.05	.00	80	1.4	.70	1.2	3.2	.30	.45
24	.30	.20	.25	.05	.00	100	1.4	.60	1.4	2.9	.50	.35
25	.33	.20	.20	.02	.00	600	1.1	.60	1.7	1.5	.40	.33
26	.33	.25	.20	.00	.00	1000	1.7	.50	1.6	1.0	.30	.30
27	.27	.30	.20	.00	.00	420	2.0	.50	2.3	.70	.25	.28
28	.30	.33	.20	.00	.00	181	1.8	.40	2.0	.57	.25	.27
29	.30	.37	.20	.00	---	132	1.8	.30	2.3	.45	.20	.24
30	.30	.40	.20	.00	---	175	1.8	4.5	9.8	.35	.20	.24
31	.33	---	.20	.00	---	177	---	140	---	.32	.20	---
TOTAL	10.39	8.64	8.28	3.07	.00	3046.00	279.3	260.09	122.08	107.89	6.62	24.96
MEAN	.34	.29	.27	.099	.000	98.3	9.31	8.39	4.07	3.48	.21	.83
MAX	.61	.40	.40	.20	.00	1000	61	140	70	27	.50	6.3
MIN	.24	.20	.15	.00	.00	.00	1.1	.30	.60	.32	.16	.18
AC-FT	21	17	16	6.1	.00	6040	554	516	242	214	13	50

CAL YR 1977 TOTAL 414.46 MEAN 1.14 MAX 94 MIN .00 AC-FT 822
WTR YR 1978 TOTAL 3877.23 MEAN 10.6 MAX 1000 MIN .00 AC-FT 7690

06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1969 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
10...	1245	.30	2050	8.5	4.0	10.4	85	K125	K75	K125	180
NOV											
07...	1350	.32	2450	8.5	6.5	10.6	92	K79	K75	K67	220
DEC											
05...	1435	.35	2770	8.2	.0	10.2	75	--	--	--	250
JAN											
09...	1445	.15	2550	7.8	.0	9.2	68	K30	K33	K35	220
MAR											
21...	1230	42	975	--	.0	--	--	--	--	--	--
24...	1305	99	340	--	.5	--	--	--	--	--	--
27...	1350	414	240	--	3.0	--	--	--	--	--	--
29...	1755	139	390	--	7.5	--	--	--	--	--	--
APR											
04...	1715	20	860	--	9.0	--	--	--	--	--	--
10...	1340	8.3	1090	8.4	7.5	9.8	87	K20	<1	K100	200
MAY											
01...	1150	1.6	2000	8.8	12.5	--	--	--	--	--	290
JUN											
12...	1255	.92	1700	8.2	19.5	8.0	93	210	300	200	230
JUL											
10...	1200	3.1	1460	8.4	18.0	8.2	93	1650	1600	650	200
AUG											
07...	1240	.18	2420	8.2	22.0	7.8	95	238	K42	108	210
SEP											
11...	1135	.46	2650	8.6	18.5	9.8	112	700	1000	580	200

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
10...	0	40	20	420	83	14	7.4	660	4	550	3.4
NOV											
07...	0	45	27	540	84	16	5.9	880	19	750	4.6
DEC											
05...	0	55	28	560	82	15	5.7	1010	0	830	10
JAN											
09...	0	46	26	610	85	18	5.5	940	0	770	24
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
10...	0	46	21	190	66	5.8	10	300	0	250	1.9
MAY											
01...	0	63	32	410	75	11	8.6	600	10	510	1.6
JUN											
12...	--	50	26	340	75	9.7	9.1	--	--	--	--
JUL											
10...	0	49	28	290	74	8.8	11	--	--	350	--
AUG											
07...	0	38	27	550	85	17	8.5	--	--	670	--
SEP											
11...	0	38	26	600	86	18	10	--	--	700	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT											
10...	570	4.5	.4	11	1370	--	1400	1.86	1.11	--	.01
NOV											
07...	680	3.3	.4	11	1800	1900	1770	2.45	1.56	30	.01
DEC											
05...	680	4.0	.4	16	1970	--	1850	2.68	1.86	--	.06
JAN											
09...	690	4.0	.3	17	1960	--	1860	2.67	.79	--	.14
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
10...	320	19	.3	9.9	753	--	764	1.02	16.9	--	.17
MAY											
01...	600	19	.4	7.7	1440	--	1450	1.96	6.22	--	.02
JUN											
12...	470	48	.3	9.0	1220	--	--	1.66	3.03	--	.10
JUL											
10...	410	7.4	.3	11	1010	--	1010	1.37	8.51	--	.03
AUG											
07...	670	7.6	.6	8.7	1760	--	1710	2.39	.86	--	.01
SEP											
11...	830	6.9	.5	8.2	1970	--	1940	2.68	2.45	--	.02

DATE	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	CAUMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT						
10...	.18	--	--	--	--	--
NOV						
07...	.03	2	500	--	4	10
DEC						
05...	.02	--	--	--	--	--
JAN						
09...	.03	--	--	--	--	--
APR						
10...	.10	--	--	--	--	--
MAY						
01...	.03	1	100	1	0	2
JUN						
12...	.70	--	--	--	--	--
JUL						
10...	.11	--	--	--	--	--
AUG						
07...	.04	--	--	--	--	--
SEP						
11...	.07	--	--	--	--	--

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)
NOV								
07...	1300	--	110	.0	0	<10	10	<22
MAY								
01...	920	2	120	.0	0	0	10	--

06332515 BEAR DEN CREEK NEAR MANDAREE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CYANIDE TOTAL (MG/L AS CN)
NOV 07...	1.0	<6.4	2.3	<5.7	2.3	.08	2.6	.00
MAY 01...	--	--	--	--	--	--	--	.00

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT 10...	104	.08	--	--	--	--	--
NOV 07...	73	.06	6	14	32	42	47
DEC 05...	113	.11	--	--	--	--	--
JAN 09...	138	.06	--	--	--	--	--
APR 10...	72	1.6	--	--	--	--	--
MAY 01...	54	.23	10	15	24	34	45
JUN 12...	44	.11	4	10	23	31	39
JUL 10...	177	1.5	--	--	--	--	--
AUG 07...	93	.05	5	12	34	41	47
SEP 11...	120	.15	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT 10...	--	--	--	--	--
NOV 07...	55	63	72	83	100
DEC 05...	--	--	--	--	--
JAN 09...	--	--	--	--	--
APR 10...	--	--	--	--	--
MAY 01...	55	68	77	84	100
JUN 12...	48	57	66	77	100
JUL 10...	--	--	--	--	--
AUG 07...	52	61	71	82	100
SEP 11...	--	--	--	--	--

06332520 SHELL CREEK NEAR PARSHALL, ND

LOCATION.--Lat 48°03'11", long 102°08'10", in SE¼NE¼ sec.29, T.153 N., R.89 W., Mountrail County, Hydrologic Unit 10110101, on left bank 800 ft (240 m) downstream from bridge on county highway, and 6 mi (10 km) northwest of Parshall.

DRAINAGE AREA.--465 mi² (1,204 km²).

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--13 years, 13.8 ft³/s (0.391 m³/s), 10,000 acre-ft/yr (12.3 hm³/yr); median of yearly mean discharges, 12 ft³/s (0.34 m³/s), 8,690 acre-ft/yr (9.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,270 ft³/s (64.3 m³/s) Apr. 6, 1969, gage height, 7.60 ft (2.316 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 382 ft³/s (10.8 m³/s) Mar. 21, gage height, 6.47 ft (1.972 m), only peak above base of 150 ft³/s (4.25 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.7	.75	.02	.02	.00	87	9.3	12	6.3	1.2	.45
2	2.3	1.7	.70	.02	.02	.00	54	8.6	11	5.0	1.1	.25
3	2.2	1.7	.65	.02	.01	.00	45	8.2	9.3	4.5	.95	.29
4	2.1	1.5	.65	.02	.00	.00	54	8.4	8.2	12	.91	.24
5	2.0	1.6	.55	.02	.02	.00	56	8.4	7.7	10	.83	.22
6	1.9	1.6	.30	.02	.02	.00	41	8.8	6.8	11	.74	.18
7	2.1	1.8	.20	.02	.00	.00	34	10	6.6	7.7	.59	.23
8	2.1	1.7	.15	.02	.00	.00	31	21	6.1	6.1	.55	.22
9	2.0	1.4	.05	.02	.00	.00	28	23	6.0	5.8	.55	.23
10	1.9	1.4	.02	.02	.00	.00	27	20	6.1	5.6	.59	.46
11	1.9	1.4	.02	.02	.00	.00	24	16	6.0	5.2	.52	.72
12	1.8	1.3	.02	.02	.00	.00	23	18	5.8	5.8	.45	7.8
13	1.7	1.4	.04	.02	.00	.00	21	20	5.4	5.6	.38	16
14	1.8	1.8	.06	.02	.00	.00	19	20	4.8	5.4	.44	14
15	1.8	1.9	.08	.02	.00	.00	17	17	5.5	5.0	.50	5.7
16	1.7	1.6	.08	.02	.00	.00	17	15	5.2	4.8	.47	2.6
17	1.7	1.7	.06	.02	.00	1.0	16	13	4.8	5.0	.50	1.6
18	1.6	1.4	.06	.02	.00	5.0	15	12	4.4	4.8	.55	2.0
19	1.7	1.4	.05	.02	.00	20	15	13	4.3	5.8	.45	1.7
20	1.6	1.2	.05	.02	.00	80	14	14	4.7	5.6	.39	1.4
21	1.7	1.0	.05	.02	.00	160	14	14	4.6	5.2	.37	1.4
22	2.0	.80	.05	.02	.00	310	14	14	4.4	4.8	.41	1.1
23	2.0	.70	.04	.02	.00	245	14	12	4.3	5.0	.70	.98
24	1.9	.60	.04	.02	.00	150	13	11	5.5	4.4	.52	.84
25	1.9	.50	.03	.02	.00	250	13	10	8.4	3.8	.42	.78
26	1.8	.50	.02	.02	.00	260	12	10	40	3.2	.39	.76
27	1.7	.50	.02	.02	.00	250	11	9.0	16	2.8	4.8	.70
28	1.6	.55	.02	.02	.00	240	11	8.6	9.7	2.4	1.5	.72
29	1.7	.60	.02	.02	---	196	10	8.2	9.3	2.0	1.1	.70
30	1.8	.70	.02	.02	---	146	9.7	8.2	11	1.6	.98	.68
31	1.7	---	.02	.02	---	123	---	11	---	1.4	.69	---
TOTAL	58.1	37.65	4.87	.62	.09	2436.00	759.7	399.7	243.9	163.6	24.54	64.95
MEAN	1.87	1.26	.16	.020	.003	78.6	25.3	12.9	8.13	5.28	.79	2.17
MAX	2.4	1.9	.75	.02	.02	310	87	23	40	12	4.8	16
MIN	1.6	.50	.02	.02	.00	.00	9.7	8.2	4.3	1.4	.37	.18
AC-FT	115	75	9.7	1.2	.2	4830	1510	793	484	325	49	129

CAL YR 1977 TOTAL 868.14 MEAN 2.38 MAX 38 MIN .00 AC-FT 1720
WTR YR 1978 TOTAL 4193.72 MEAN 11.5 MAX 310 MIN .00 AC-FT 8320

06335000 LITTLE BEAVER CREEK NEAR MARMARTH, ND

LOCATION.--Lat 46°16'29", long 103°58'33", in NE¼ sec.7, T.132 N., R.106 W., Bowman County, Hydrologic Unit 10110201, on right bank 150 ft (46 m) downstream from concreted ford, 0.8 mi (1.3 km) downstream from Corral Creek, 3 mi (5 km) southwest of Marmarth, and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--587 mi^2 (1,520 km^2), approximately.

PERIOD OF RECORD.--April 1938 to current year.

REVISED RECORDS (WATER YEARS).--WSP 1279: 1939(M), 1940, 1943-44(M), 1945, 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,733.14 ft (833.061 m) National Geodetic Vertical Datum of 1929. June 28, 1951 to May 17, 1968, water-stage recorder 300 ft (90 m) upstream at datum 10.00 ft (3.048 m) higher. See WSP 1729 or 1917 for history of changes prior to June 28, 1951.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--40 years, 44.4 ft^3/s (1.257 m^3/s), 32,170 acre-ft/yr (39.7 hm^3/yr), median of yearly mean discharges, 30 ft^3/s (0.85 m^3/s), 21,700 acre-ft/yr (27 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) Apr. 6, 1952, gage height, 13.9 ft (4.24 m), from floodmark, site and datum then in use, from rating curve extended above 4,500 ft^3/s (127 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	3,500	99.1	Backwater from ice		May 19	0430	5,720	162	21.12	6.437
Mar. 27	0545	*6,460	183	21.60	6.584						

Minimum daily, 0.90 ft^3/s (0.025 m^3/s) Nov. 25 and 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	3.9	2.5	2.5	1.2	1.5	333	47	239	33	11	4.3
2	110	3.5	2.0	2.5	1.0	1.5	201	44	131	31	11	4.3
3	39	3.4	2.0	2.5	1.0	1.5	361	45	105	54	9.2	4.2
4	24	3.4	1.5	2.5	1.0	1.5	246	78	58	33	8.7	4.2
5	16	3.4	1.5	2.5	1.0	1.5	191	111	49	29	8.2	4.0
6	8.0	3.3	1.5	2.5	1.0	1.5	160	127	42	31	7.7	3.7
7	334	3.6	1.5	2.3	1.0	1.5	136	237	47	37	7.3	3.5
8	231	3.4	1.5	2.3	1.0	1.5	117	491	38	56	7.0	3.2
9	76	3.2	1.5	2.3	1.0	1.5	109	312	31	47	7.2	3.3
10	58	3.1	1.5	2.3	1.0	1.5	99	202	27	34	6.7	3.2
11	34	3.2	1.0	2.3	1.0	2.4	89	127	26	26	6.4	3.7
12	32	3.6	1.0	2.3	1.0	3.1	84	150	26	53	6.1	26
13	29	3.6	1.0	2.3	1.0	3.1	75	108	25	35	5.4	103
14	21	3.9	1.0	2.3	1.0	3.2	70	97	24	28	6.1	50
15	15	4.0	1.5	2.3	1.0	3.2	70	76	21	27	6.1	27
16	8.6	3.6	2.0	2.0	1.0	3.4	70	64	248	20	6.1	16
17	6.0	3.5	3.0	2.0	1.0	3.5	69	64	111	16	6.1	10
18	5.1	3.5	3.5	2.0	1.0	4.0	91	69	48	15	5.9	11
19	4.4	3.0	3.5	2.0	1.0	5.0	108	2660	36	17	5.4	24
20	3.8	2.5	4.0	2.0	1.0	20	80	448	31	29	5.2	27
21	3.0	2.5	4.0	1.7	1.0	520	69	202	24	21	5.2	17
22	3.6	2.0	4.0	1.5	1.0	2110	72	161	22	37	5.2	10
23	3.2	1.0	3.5	1.5	1.5	2260	64	131	18	46	5.2	7.8
24	2.5	1.0	3.5	1.5	1.5	1130	59	103	17	25	5.0	7.8
25	3.0	.90	3.0	1.5	1.5	1940	57	81	105	14	4.9	7.0
26	3.7	.90	3.0	1.5	1.5	4330	54	70	152	12	4.9	6.7
27	3.8	1.0	3.0	1.5	1.5	5870	51	66	136	11	4.2	6.4
28	4.2	2.0	3.0	1.5	1.5	3820	50	66	61	9.8	4.3	6.4
29	3.9	2.5	3.0	1.5	---	1830	49	62	48	9.2	4.3	6.4
30	3.6	2.5	3.0	1.5	---	1050	48	182	38	8.7	4.3	6.1
31	3.7	---	3.0	1.4	---	625	---	213	---	9.8	4.3	---
TOTAL	1355.1	84.90	74.5	62.3	31.2	25550.9	3332	6894	1984	854.5	194.6	417.2
MEAN	43.7	2.83	2.40	2.01	1.11	824	111	222	66.1	27.6	6.28	13.9
MAX	334	4.0	4.0	2.5	1.5	5870	361	2660	248	56	11	103
MIN	2.5	.90	1.0	1.4	1.0	1.5	48	44	17	8.7	4.2	3.2
AC-FT	2690	168	148	124	62	50680	6610	13670	3940	1690	386	828

CAL YR 1977 TOTAL 5886.31 MEAN 16.1 MAX 334 MIN .00 AC-FT 11680
WTR YR 1978 TOTAL 40835.20 MEAN 112 MAX 5870 MIN .90 AC-FT 81000

06335500 LITTLE MISSOURI RIVER AT MARMARTH, ND

LOCATION.--Lat 46°17'44", long 103°55'06", in SW¼ sec.30, T.133 N., R.105 W., Slope County, Hydrologic Unit 10110203, on left bank 90 ft (27 m) downstream from bridge on U.S. Highway 12 in Marmarth, and 1.5 mi (2.4 km) downstream from Little Beaver Creek.

DRAINAGE AREA.--4,640 mi^2 (12,020 km^2), approximately.

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS (WATER YEARS).--WSP 896: 1938-39. WSP 1086: 1943-44. WSP 1279: 1943(M), 1945-46, 1948. WSP 1439: 1950 (calendar year figures).

GAGE.--Water-stage recorder. Datum of gage is 2,686.32 ft (818.790 m) National Geodetic Vertical Datum of 1929. Prior to June 23, 1950, various nonrecording gages on former highway bridge at present site and datum. June 23, 1950, to Sept. 2, 1957, nonrecording gage at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--40 years, 349 ft^3/s (9.884 m^3/s), 252,900 acre-ft/yr (312 hm^3/yr); median of yearly mean discharges, 276 ft^3/s (7.82 m^3/s), 200,000 acre-ft/yr (247 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft^3/s (1,270 m^3/s) Mar. 23, 1947, gage height, 21.7 ft (6.61 m); maximum gage height, 23.4 ft (7.13 m) Mar. 31, 1952, backwater from ice; no flow for part of most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, the greatest known flood prior to 1953 occurred in June 1907 (stage unknown). Other major floods occurred in March 1913, May 1929, and March 1920 and reached stages of about 21.5 ft (6.55 m), 20.2 ft (6.16 m), and 19.7 ft (6.00 m), respectively. These stages are not comparable to stages during period of record, owing to construction of levees.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,370 ft^3/s (690 m^3/s) Mar. 27, gage height, 17.33 ft (5.282 m), only peak above base of 3,000 ft^3/s (85.0 m^3/s); minimum daily, 3.0 ft^3/s (0.085 m^3/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	59	9.7	15	3.5	4.5	8530	204	3180	256	180	38
2	819	55	17	15	3.5	4.5	6360	196	2950	192	204	120
3	296	50	23	15	3.5	4.5	5180	192	2980	249	166	74
4	1170	48	27	15	3.0	4.5	3790	337	2650	188	244	46
5	1660	46	24	15	3.0	4.5	2800	600	2140	188	260	41
6	1040	46	20	15	3.0	4.0	2210	482	1690	168	213	39
7	1890	45	18	15	3.0	3.8	1780	997	1310	245	165	38
8	2300	45	17	15	3.0	3.9	1470	3190	932	274	120	32
9	1490	43	10	15	3.0	5.0	1260	3380	714	229	94	31
10	3590	48	9.3	15	3.0	8.0	1080	4800	564	172	78	30
11	4050	46	8.1	12	3.0	10	897	5020	482	144	74	30
12	2610	52	6.0	12	3.0	10	773	5290	410	180	66	168
13	1940	56	6.0	10	3.0	10	688	5120	355	356	66	390
14	1200	54	7.0	9.7	3.0	15	600	5070	319	176	62	200
15	758	54	9.0	9.4	3.0	200	553	4510	314	160	58	100
16	517	48	10	9.2	3.0	450	542	3660	715	148	57	61
17	359	41	12	9.0	3.0	707	487	2500	350	108	56	54
18	272	41	14	8.7	3.0	732	513	1630	265	94	54	51
19	228	38	15	8.4	3.0	826	701	4640	238	196	50	46
20	192	32	15	8.0	3.0	1600	525	1950	224	305	50	46
21	164	28	15	7.8	3.0	4600	428	1130	200	204	52	44
22	140	23	15	7.5	3.0	7130	380	2050	208	256	51	40
23	120	17	15	7.5	4.0	8510	335	2700	274	301	50	38
24	104	12	15	7.0	5.0	9690	301	2960	269	238	50	38
25	91	12	15	6.0	6.0	16500	278	2870	323	545	86	36
26	82	10	15	5.0	6.0	19700	260	2330	1080	558	45	35
27	76	9.7	15	4.0	6.0	21900	242	1660	1030	436	46	33
28	73	9.3	15	3.5	5.0	20200	233	1340	461	326	80	31
29	66	9.1	15	3.5	---	17300	220	998	439	256	68	30
30	63	9.0	15	3.5	---	15600	216	2290	354	212	59	28
31	59	---	15	3.5	---	11700	---	2740	---	196	41	---
TOTAL	28308	1086.1	442.1	305.2	99.5	157437.2	43632	76836	27420	7556	2913	1988
MEAN	913	36.2	14.3	9.85	3.55	5079	1454	2479	914	244	94.0	66.3
MAX	4050	59	27	15	6.0	21900	8530	5290	3180	558	260	390
MIN	59	9.0	6.0	3.5	3.0	3.8	216	192	200	94	41	28
AC-FT	56150	2150	877	605	197	312300	86540	152400	54390	14990	5780	3940

CAL YR 1977 TOTAL 74261.98 MEAN 203 MAX 4050 MIN .50 AC-FT 147300
WTR YR 1978 TOTAL 348023.10 MEAN 953 MAX 21900 MIN 3.0 AC-FT 690300

06335750 DEEP CREEK NEAR AMIDON, ND

LOCATION.--Lat 46°34'37", long 103°33'26", in SE¼SW¼NE¼ sec.24, T.136 N., R.103 W., Slope County, Hydrologic Unit 10110203, on left bank 100 ft (30 m) downstream from county bridge, 3.0 mi (4.8 km) above mouth, and 13 mi (21 km) northwest of Amidon.

DRAINAGE AREA.--280 mi^2 (725 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,460 ft (750 m), from topographic map.

REMARKS.--Records good except those from October to March, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.24 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 26	0645	ice jam		*8.37	2.551	May 9	1015	153	4.33	2.67	0.814
Mar. 27	0845	*1,680	45.6	8.28	2.524						

No flow for part of Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	.76	1.8	1.0	.50	.70	435	22	48	9.6	1.7	2.3
2	6.3	.55	1.8	1.0	.50	.70	245	20	56	7.5	1.3	2.0
3	5.9	.55	1.8	1.0	.60	.70	163	18	63	6.0	1.3	1.4
4	13	.48	1.8	1.0	.60	.70	165	21	41	5.4	2.6	1.1
5	11	.62	1.7	1.0	.60	1.0	175	29	30	4.9	2.0	.91
6	6.3	.83	1.6	1.0	.60	1.0	158	33	25	7.2	1.7	.74
7	7.8	.69	1.4	1.0	.60	1.0	127	39	22	5.2	1.4	.57
8	12	.69	1.2	.90	.60	1.0	104	68	18	4.6	1.3	.38
9	9.5	.83	1.0	.70	.60	1.2	87	117	16	3.9	1.1	.28
10	22	.76	.80	.60	.60	1.2	76	90	14	3.4	1.3	.25
11	25	.76	.70	.60	.60	1.2	67	67	14	3.4	1.0	.16
12	17	.76	1.0	.60	.60	1.2	63	50	14	4.1	.93	.34
13	10	.76	1.2	.60	.60	1.2	56	41	12	2.8	.76	1.1
14	6.7	.83	1.3	.60	.60	1.7	47	37	15	2.8	.70	1.8
15	4.8	.83	1.4	.60	.60	2.0	45	33	11	2.6	.49	1.5
16	3.8	.41	1.4	.60	.60	2.5	45	26	12	2.0	.45	.93
17	2.8	.90	1.4	.60	.60	3.5	47	22	9.2	1.9	.37	.78
18	2.2	.90	1.4	.50	.60	4.5	48	19	7.5	2.0	.37	1.1
19	1.7	.90	1.4	.40	.60	5.0	47	18	6.6	4.9	.35	1.2
20	1.5	.90	1.4	.40	.60	30	46	28	6.3	9.2	.35	1.1
21	1.4	.80	1.4	.40	.70	80	43	41	5.4	6.6	.36	1.4
22	.90	.70	1.4	.40	.80	230	37	38	4.9	5.2	.33	1.2
23	.76	.60	1.2	.40	.95	480	35	29	4.9	3.9	.32	1.0
24	.62	.60	1.1	.40	1.0	650	31	23	4.9	3.2	.29	1.1
25	.69	.60	1.0	.40	1.0	580	31	19	5.2	2.8	.28	1.0
26	.76	.60	1.0	.40	1.0	1100	27	15	5.7	2.4	.80	.94
27	.69	.90	1.0	.40	.90	1560	25	12	6.9	1.7	4.2	.79
28	.83	1.2	1.0	.40	.70	1200	25	10	15	1.5	5.8	.73
29	.83	1.4	1.0	.40	---	720	24	9.2	11	1.4	2.9	.51
30	.76	1.6	1.0	.40	---	420	23	24	14	1.4	3.7	.62
31	.83	---	1.0	.40	---	580	---	36	---	1.5	2.4	---
TOTAL	187.37	23.71	39.60	19.10	18.85	7662.00	2547	1050.2	518.5	125.0	42.85	29.23
MEAN	6.04	.79	1.28	.62	.67	247	84.9	33.9	17.3	4.03	1.38	.97
MAX	25	1.6	1.8	1.0	1.0	1560	435	117	63	9.6	5.8	2.3
MIN	.62	.41	.70	.40	.50	.70	23	9.2	4.9	1.4	.28	.16
AC-FT	372	47	79	38	37	15200	5050	2080	1030	248	85	58

WTR YR 1978 TOTAL 12263.41 MEAN 33.6 MAX 1560 MIN .16 AC-FT 24320

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
14...	1000	6.5	3280	7.2	9.5	7.5	11.8	102	K33	K2300	730
NOV											
17...	1045	.94	3230	8.2	2.0	1.5	12.2	95	23	640	660
DEC											
15...	1015	1.4	3900	8.1	3.5	.5	9.5	71	K28	520	770
JAN											
20...	1200	.41	4300	8.2	-26.5	.0	12.2	92	1100	360	980
FEB											
23...	1045	.88	4270	8.1	5.0	.5	11.6	89	680	260	940
MAR											
14...	1100	1.7	3180	8.1	1.0	.0	--	--	180	K14000	600
22...	1130	227	--	--	--	1.0	--	--	--	--	--
27...	1730	1460	--	--	--	2.0	--	--	--	--	--
APR											
04...	1700	171	--	--	14.0	7.5	--	--	--	--	--
19...	1115	47	2780	6.9	5.0	6.0	11.6	102	--	--	670
MAY											
30...	1530	32	3250	8.5	10.0	17.0	7.4	84	1300	4500	860
JUN											
29...	1400	10	4130	8.3	14.0	14.0	7.7	100	180	600	930
JUL											
27...	1450	1.9	3760	8.4	22.5	25.0	8.9	114	320	250	810
AUG											
10...	1230	1.3	4100	8.4	33.0	25.0	8.7	114	190	260	890
SEP											
14...	0840	2.0	3440	8.4	12.0	13.0	10.2	106	200	460	640

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
14...	390	94	120	560	62	9.0	12	415	0	340	42
NOV											
17...	220	98	100	510	62	8.7	12	532	0	436	5.4
DEC											
15...	160	110	120	660	65	10	14	746	0	610	9.5
JAN											
20...	230	130	160	820	64	11	14	912	0	750	9.2
FEB											
23...	240	130	150	860	66	12	15	852	0	700	11
MAR											
14...	91	90	91	570	67	10	13	621	0	510	7.9
22...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
19...	320	110	97	400	56	6.7	9.9	428	0	350	86
MAY											
30...	430	130	130	620	61	9.2	12	505	8	428	2.6
JUN											
29...	420	110	160	730	63	10	14	626	0	510	5.0
JUL											
27...	330	110	130	690	64	11	14	575	8	485	3.7
AUG											
10...	410	110	150	700	63	10	15	561	10	477	3.6
SEP											
14...	210	93	100	590	66	10	14	520	5	430	3.4

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
14...	1600	10	.2	6.3	2580	2610	3.55	45.8	.00	.01	.99
NOV											
17...	1200	9.2	.5	7.1	2460	2200	2.99	5.5	.02	.01	.53
DEC											
15...	1700	9.3	.5	8.8	3050	2990	4.07	11.5	.15	.18	.58
JAN											
20...	2000	12	.5	13	3620	3600	4.90	3.9	.26	.12	.55
FEB											
23...	2000	12	.6	14	3590	3600	4.90	8.5	.40	.07	.50
MAR											
14...	1300	7.6	.3	11	2350	2390	3.25	11.2	.81	.18	1.0
22...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
19...	1100	7.3	.2	7.3	2130	1940	2.64	246	.54	.03	.78
MAY											
30...	1500	7.3	.2	4.5	2540	2660	3.62	230	.30	.08	1.5
JUN											
29...	1800	8.1	.3	3.8	3340	3140	4.27	84.8	.00	.00	1.2
JUL											
27...	1700	8.4	.4	5.7	2970	2950	4.01	15.1	.01	.00	1.2
AUG											
10...	1900	1.2	.4	6.4	3210	3170	4.31	11.1	.03	.07	.70
SEP											
14...	1500	8.2	.4	6.6	2670	2580	3.51	13.9	.00	.00	.82

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)
OCT											
14...	1.0	1.0	4.4	.06	.01	--	--	--	--	--	--
NOV											
17...	.54	.56	2.5	.03	.01	20	--	2	--	--	200
DEC											
15...	.76	.91	4.0	.04	.01	--	--	--	--	--	--
JAN											
20...	.67	.93	4.1	.06	.03	--	--	--	--	--	--
FEB											
23...	.57	.97	4.3	.04	.03	--	--	--	--	--	--
MAR											
14...	1.2	2.0	8.9	.05	.02	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	50	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
19...	.81	1.4	6.0	.08	.01	0	2	2	26	100	0
MAY											
30...	1.6	1.9	8.4	.24	.01	--	--	--	--	--	--
JUN											
29...	1.2	1.2	5.3	.08	.02	0	3	3	25	300	50
JUL											
27...	1.2	1.2	5.4	.01	.00	--	--	--	--	--	--
AUG											
10...	.77	.80	3.5	.01	.00	0	--	2	--	--	100
SEP											
14...	.82	.82	3.6	.02	.01	--	--	--	--	--	--

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV, FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV, FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV, FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
14...	--	--	--	--	1900	--	--	--	--	--
NOV										
17...	--	--	0	--	1500	--	0	--	--	8
DEC										
15...	--	--	--	--	1500	--	--	--	--	--
JAN										
20...	--	--	--	--	1700	--	--	--	--	--
FEB										
23...	--	--	--	--	1600	--	--	--	--	--
MAR										
14...	--	--	--	--	1000	--	--	--	--	--
22...	1500	--	--	10	--	--	--	1	--	--
27...	--	--	--	--	--	--	--	--	--	--
APR										
04...	--	--	--	--	--	--	--	--	--	--
19...	100	0	0	0	850	2	1	0	0	0
MAY										
30...	--	--	--	--	1200	--	--	--	--	--
JUN										
29...	100	0	0	0	1600	0	1	0	0	0
JUL										
27...	--	--	--	--	1500	--	--	--	--	--
AUG										
10...	--	--	0	--	1500	--	0	--	--	10
SEP										
14...	--	--	--	--	1200	--	--	--	--	--

DATE	CHRO-MIUM, RECOV, FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV, FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV, FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
14...	--	--	--	--	--	--	--	50	--	--
NOV										
17...	--	--	0	--	--	0	--	30	--	2
DEC										
15...	--	--	--	--	--	--	--	70	--	--
JAN										
20...	--	--	--	--	--	--	--	60	--	--
FEB										
23...	--	--	--	--	--	--	--	40	--	--
MAR										
14...	--	--	--	--	--	--	--	150	--	--
22...	60	--	--	5	--	--	9	--	--	--
APR										
19...	1	2	3	4	4	2	5	40	3	6
MAY										
30...	--	--	--	--	--	--	--	30	--	--
JUN										
29...	4	4	0	10	8	9	5	30	10	0
JUL										
27...	--	--	--	--	--	--	--	30	--	--
AUG										
10...	--	--	1	--	--	7	--	20	--	1
SEP										
14...	--	--	--	--	--	--	--	30	--	--

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)
OCT										
14...	--	--	--	--	--	--	--	--	--	--
NOV										
17...	--	--	50	--	10	--	--	.0	--	--
MAR										
14...	--	--	--	--	--	--	--	--	--	--
22...	30	--	--	--	--	5100	--	--	.03	--
APR										
19...	12	40	40	150	100	180	.0	.1	.05	4
MAY										
30...	--	--	--	--	--	--	--	--	--	--
JUN										
29...	20	80	80	120	20	30	.0	.0	.05	5
JUL										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
10...	--	--	80	--	60	--	--	.0	--	--

DATE	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)
OCT									
14...	--	--	--	--	--	--	--	--	--
NOV									
17...	--	2	--	2	--	--	1	--	.0
MAR									
14...	--	--	--	--	--	--	--	--	--
22...	0	--	--	--	10	--	--	0	--
APR									
19...	3	0	3	4	0	0	1	0	.0
MAY									
30...	--	--	--	--	--	--	--	--	--
JUN									
29...	4	5	0	4	15	1	1	0	.0
JUL									
27...	--	--	--	--	--	--	--	--	--
AUG									
10...	--	5	--	3	--	--	1	--	.0
SEP									
14...	--	--	--	--	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
APR								
04...	24	37	46	58	71	88	89	100
19...		--	--	--	--	--	--	--
MAY								
30...	82	84	86	89	93	97	100	--
JUN								
29...	40	48	60	75	87	94	100	--
JUL								
27...	--	--	--	--	--	--	--	--
AUG								
10...	--	--	--	--	--	--	--	--
SEP								
14...	--	--	--	--	--	--	--	--

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT									
14...	--	--	--	--	--	--	--	--	--
NOV									
17...	--	10	--	--	--	--	--	--	--
DEC									
15...	--	--	--	--	--	--	--	--	--
JAN									
20...	--	--	--	--	--	--	--	--	--
FEB									
23...	--	--	--	--	--	--	--	--	--
MAR									
14...	--	--	--	--	--	--	--	--	--
22...	--	--	220	--	--	--	--	--	--
APR									
19...	20	10	13	<20	.4	36	4.8	--	--
MAY									
30...	--	--	--	--	--	--	--	--	--
JUN									
29...	20	10	19	--	--	--	--	--	--
JUL									
27...	--	--	--	--	--	--	--	--	--
AUG									
10...	--	10	--	--	--	--	--	--	--
SEP									
14...	--	--	--	43	6.3	19	2.9	18	3.1

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT									
14...	27	.9	151	2.7	--	--	--	--	--
NOV									
17...	17	.6	34	.09	--	--	--	--	--
DEC									
15...	17	.5	93	.36	--	--	--	--	--
JAN									
20...	19	.5	112	.12	--	--	--	--	--
FEB									
23...	15	.5	64	.15	--	--	--	--	--
MAR									
14...	15	.5	49	.23	--	--	--	--	--
22...	--	--	583	357	35	52	--	--	--
27...	--	--	978	3060	--	--	--	--	--
APR									
04...	--	--	604	279	41	62	2	4	16
19...	14	1.4	152	19	--	--	--	--	--
MAY									
30...	14	3.8	585	51	--	--	43	72	82
JUN									
29...	19	.7	219	5.9	--	--	7	11	20
JUL									
27...	10	.3	82	.42	--	--	--	--	--
AUG									
10...	15	.3	59	.21	--	--	--	--	--
SEP									
14...	13	.7	13	.07	--	--	--	--	--

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
OCT								
14...	--	--	--	--	--	--	--	--
NOV								
17...	--	--	--	--	--	--	--	--
DEC								
15...	--	--	--	--	--	--	--	--
JAN								
20...	--	--	--	--	--	--	--	--
FEB								
23...	--	--	--	--	--	--	--	--
MAR								
14...	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
APR								
04...	26	37	46	58	71	80	89	100
19...	--	--	--	--	--	--	--	--
MAY								
30...	82	84	86	89	93	97	100	--
JUN								
29...	40	48	60	75	87	94	100	--
JUL								
27...	--	--	--	--	--	--	--	--
AUG								
10...	--	--	--	--	--	--	--	--
SEP								
14...	--	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN					
29...	30	4.40	.790	13.5	12.1
AUG					
10...	13	2.44	.000	--	--

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 14,77		NOV 17,77		DEC 15,77		JAN 20,78		FEB 23,78		MAR 14,78	
TIME	1000		1045		1015		1200		1045		1100	
TOTAL CELLS/ML	4600		570		140		22		43		39	
DIVERSITY: DIVISION	1.8		1.3		1.2		0.0		0.7		0.8	
.CLASS	1.8		1.3		1.2		0.0		0.7		0.8	
..ORDER	2.6		1.3		1.2		0.0		1.3		0.8	
...FAMILY	3.1		1.4		1.6		0.9		2.3		2.0	
....GENUS	3.4		1.7		1.6		0.9		2.6		2.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	51	1	7	1	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	440	10	270#	47	19	14	--	-	7#	17	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	13	2	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	100	2	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	100	2	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	410	9	--	-	63#	45	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	210	4	--	-	--	-	--	-	--	-	10#	25
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	*	0	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	510	11	--	-	6	5	--	-	7#	17	--	-
....SKELETONEMA	77	2	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	7	1	--	-	--	-	7#	17	--	-
...CYMBELLACEAE												
....AMPHORA	26	1	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	10#	25
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	26	5	--	-	--	-	--	-	--	-
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	7#	17	--	-
....NAVICULA	150	3	--	-	*	0	15#	67	7#	17	10#	25
...NITZSCHIACEAE												
....CYLINDROTHECA	51	1	--	-	--	-	--	-	--	-	--	-
....NITZSCHIA	310	7	*	0	--	-	--	-	7#	17	10#	25
...SURIRELLACEAE												
....SURIRELLA	51	1	--	-	--	-	7#	33	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	26	1	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	1100#	24	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	50#	36	--	-	--	-	--	-
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	670	15	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	260	6	20	3	--	-	--	-	--	-	--	-
....PHACUS	26	1	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	230#	41	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06335750 DEEP CREEK NEAR AMIDON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 19,78		MAY 30,78		JUN 29,78		JUL 27,78		AUG 10,78		SEP 14,78	
TIME	1115		1530		1400		1450		1230		0840	
TOTAL CELLS/ML	12000		88		5000		2100		1800		2800	
DIVERSITY: DIVISION	0.7		1.5		1.5		1.5		1.7		1.4	
.CLASS	0.7		1.5		1.5		1.5		1.7		1.4	
..ORDER	1.0		2.3		2.4		1.8		1.9		1.7	
...FAMILY	1.0		2.3		2.9		2.4		2.5		2.4	
....GENUS	0.0		2.3		3.5		2.5		2.7		2.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	5800#	48	29#	33	290	6	950#	45	810#	45	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	96	3
....KIRCHNERIELLA	4000#	33	--	-	520	11	18	1	33	2	--	-
....OOCYSTIS	--	-	--	-	180	4	--	-	--	-	--	-
....QUADRIGULA	--	-	--	-	210	4	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	240	9
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	--	-	--	-	66	4	380	14
....SCENEDESMUS	--	-	--	-	420	8	200	9	--	-	96	3
....TETRASTRUM	--	-	--	-	79	2	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	830	7	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	1100#	22	--	-	--	-	220	8
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	15#	17	--	-	36	2	50	3	--	-
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	500	4	15#	17	240	5	130	6	50	3	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	52	1	36	2	--	-	24	1
....COCCONEIS	--	-	--	-	--	-	310	15	220	12	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	52	1	18	1	100	5	48	2
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	24	1
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	66	4	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--		--	-	130	3	--	-	--	-	96	3
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	24	1
....NAVICULA	--	-	15#	17	52	1	130	6	50	3	1100#	39
...NITZSCHIACEAE												
....CYLINDROTHECA	--	-	--	-	--	-	--	-	--	-	--	-
....NITZSCHIA	--	-	--	-	260	5	--	-	--	-	120	4
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	26	1	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	830	7	15#	17	450	9	250	12	130	7	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	840#	17	--	-	--	-	--	-
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	26	1	--	-	--	-	--	-
....TRACHELOMONAS	83	1	--	-	26	1	36	2	250	14	330	12

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT

LOCATION.--Lat 47°02'26", long 104°08'04", in NW¼SW¼SW¼ sec.21, T.15 N., R.60 E., Wibaux County, Hydrologic Unit 10110204, on left bank, and 5.5 mi (8.8 km) northeast of Wibaux.

DRAINAGE AREA.--10 mi² (26 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to September 1978.

GAGE.--Water-stage recorder.

REMARKS.--Records fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft³/s (0.28 m³/s) and maximum(*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	--	*50	1.42	*6.67	2.033	June 29	1645	16	0.45	2.23	0.680

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						.00	1.6	.31	3.5	3.6	.04	.03
2						.00	1.1	.29	2.3	1.2	.04	.03
3						.00	1.7	.27	1.5	.44	.04	.03
4						.00	1.5	.37	1.0	.93	.04	.03
5						.00	1.3	.58	.64	3.3	.04	.03
6						.00	.84	.83	.44	1.8	.06	.03
7						.00	.52	.75	.39	1.3	.04	.03
8						.00	.43	1.0	.39	.52	.04	.03
9						.10	.40	.97	.34	.39	.04	.03
10						.20	.41	.60	.29	.27	.04	.03
11						.50	.40	.50	.22	.20	.04	.03
12						2.5	.43	.99	.20	.17	.04	.04
13						10	.41	.77	.18	.13	.04	.04
14						12	.43	.53	.17	.10	.03	.04
15						13	.41	.39	.30	.06	.03	.04
16						11	.41	.33	.28	.06	.03	.04
17						13	.41	.34	.28	.05	.03	.04
18						25	.47	.33	.32	.17	.03	.05
19						40	.58	.33	.32	.70	.03	.05
20						36	.58	.37	.30	.44	.04	.05
21						34	.52	.39	.28	.39	.03	.05
22						24	.43	.31	.26	.25	.03	.05
23						19	.40	.21	.24	.19	.03	.04
24						16	.36	.19	.30	.15	.03	.04
25						14	.32	.16	.35	.10	.03	.04
26						13	.29	.15	.31	.06	.03	.04
27						13	.29	.15	.27	.05	.03	.04
28						8.3	.29	.14	.22	.04	.03	.04
29						3.5	.31	.15	5.6	.04	.03	.04
30						3.0	.31	.39	8.2	.04	.03	.04
31						2.4	---	3.5	---	.04	.03	---
TOTAL						313.50	17.85	16.59	29.39	17.18	1.09	1.14
MEAN						10.1	.60	.54	.98	.55	.035	.038
MAX						40	1.7	3.5	8.2	3.6	.06	.05
MIN						.00	.29	.14	.17	.04	.03	.03
AC-FT						622	35	33	58	34	2.2	2.3

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1978 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
NOV											
18...	1350	.02	3610	7.8	2.5	1800	1400	240	290	270	25
MAR											
13...	1630	--	740	7.3	.5	350	230	60	48	39	19
13...	1720	15	--	--	--	--	--	--	--	--	--
15...	1120	11	--	--	.5	--	--	--	--	--	--
15...	1130	--	495	7.6	1.0	220	120	44	26	19	15
15...	1535	15	--	--	.5	--	--	--	--	--	--
16...	0830	--	--	--	--	--	--	--	--	--	--
16...	1630	--	--	--	--	--	--	--	--	--	--
17...	1615	9.0	640	--	.0	--	--	--	--	--	--
17...	1625	8.9	640	--	.0	--	--	--	--	--	--
18...	1050	22	440	--	.0	--	--	--	--	--	--
20...	1715	--	255	--	.2	--	--	--	--	--	--
21...	1035	34	325	--	.2	--	--	--	--	--	--
21...	1100	33	325	--	.5	--	--	--	--	--	--
22...	1200	26	360	--	1.0	--	--	--	--	--	--
23...	1040	--	580	7.8	.5	250	140	49	31	23	16
23...	1056	10	580	--	.5	--	--	--	--	--	--
23...	1115	10	580	--	.5	--	--	--	--	--	--
24...	0900	--	540	--	.5	--	--	--	--	--	--
28...	1330	2.9	890	--	5.0	--	--	--	--	--	--
28...	1400	2.9	890	--	5.0	--	--	--	--	--	--
29...	1410	3.2	1340	--	8.5	--	--	--	--	--	--
APR											
20...	1355	.57	3050	--	11.0	--	--	--	--	--	--
JUN											
29...	1300	3.2	--	--	--	--	--	--	--	--	--
JUL											
07...	0915	1.5	--	--	--	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
NOV											
18...	2.8	11	530	0	430	13	1800	25	.1	6.2	2910
MAR											
13...	.9	14	150	0	120	12	270	5.8	.1	7.1	519
13...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	.6	12	120	0	98	4.8	140	3.8	.1	7.6	312
15...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
23...	.6	9.7	140	0	110	3.6	180	4.0	.1	8.4	375
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
07...	--	--	--	--	--	--	--	--	--	--	--

06336515 LOWER HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV											
18...	3.96	.16	.58	10	1	30	40	0	2200	--	--
MAR											
13...	.71	--	1.3	10	170	300	230	0	450	--	--
13...	--	--	--	--	--	--	--	--	--	35	1.5
15...	--	--	--	--	--	--	--	--	--	41	1.2
15...	.42	--	1.5	10	160	160	120	0	290	--	--
15...	--	--	--	--	--	--	--	--	--	32	1.3
16...	--	--	--	--	--	--	--	--	--	18	--
16...	--	--	--	--	--	--	--	--	--	21	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	31	.75
18...	--	--	--	--	--	--	--	--	--	39	2.4
20...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	163	15
22...	--	--	--	--	--	--	--	--	--	231	17
23...	.51	--	.97	0	170	90	100	2	320	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	54	1.5
24...	--	--	--	--	--	--	--	--	--	30	--
28...	--	--	--	--	--	--	--	--	--	54	.42
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	--	--	--	--	--	--	--	--	--	596	5.3
JUL											
07...	--	--	--	--	--	--	--	--	--	6	.03

06336600 BEAVER CREEK NEAR TROTTERS, ND

LOCATION.--Lat 47°09'47", long 103°59'32", in SW¼SW¼NE¼ sec.33, T.143 N., R.105 W., Golden Valley County, Hydrologic Unit 10110204, on left bank 100 ft (30 m) upstream from bridge on county road, 2.4 mi (3.9 km) west of Montana-North Dakota State line, 13 mi (21 km) southwest of Trotters, 17 mi (27 km) north of Beach, 20 mi (32 km) upstream from Elk Creek, and 27 mi (43 km) above mouth.

DRAINAGE AREA.--485 mi² (1,260 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,370 ft (722 m), from topographic map.

REMARKS.--Records good except those for periods from October to March and July to September, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	2,500	70.8	[a]*19.27	5.874
June 29	--	1,140	32.3	[b]12.65	3.856
Mar. 29	0900	*2,720	77.0	18.61	5.672

Minimum daily, 0.04 ft³/s (0.001 m³/s) Oct. 3-7, 10-15.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.28	1.7	2.0	1.0	1.7	1010	42	61	80	11	2.1
2	.12	.36	2.0	2.0	1.0	1.7	681	39	96	70	11	1.4
3	.04	.36	2.2	2.0	1.0	1.7	405	37	134	90	11	1.1
4	.04	.32	2.3	2.0	1.1	1.7	296	40	132	100	11	.98
5	.04	.36	2.2	2.0	1.2	1.8	290	39	109	80	11	.91
6	.04	.40	2.1	2.0	1.3	2.0	321	41	86	70	9.9	.54
7	.04	.40	2.0	1.9	1.5	2.2	271	42	69	90	9.1	.46
8	.12	.49	1.8	1.9	1.6	2.5	224	46	57	120	8.5	.48
9	.12	.40	1.4	1.9	1.6	4.0	178	50	49	100	8.3	.45
10	.04	.70	1.6	1.8	1.6	6.0	147	50	42	80	10	.33
11	.04	.49	1.9	1.7	1.6	7.0	127	51	37	60	11	.43
12	.04	.59	2.0	1.6	1.6	6.0	114	79	33	50	11	2.1
13	.04	.82	2.0	1.5	1.6	9.0	105	76	33	36	11	6.0
14	.04	1.1	2.0	1.4	1.5	12	96	64	33	31	9.9	4.1
15	.04	1.1	2.0	1.3	1.5	14	89	55	34	28	10	2.5
16	.12	1.3	2.0	1.1	1.5	16	82	51	30	36	9.6	1.7
17	.16	1.0	2.0	1.0	1.4	30	77	49	27	45	9.3	.89
18	.12	.90	2.0	1.1	1.4	50	74	44	25	36	8.4	.99
19	.16	.80	2.0	1.2	1.4	100	73	41	23	47	7.5	3.1
20	.16	.80	2.0	1.2	1.7	600	69	39	22	55	6.8	3.9
21	.20	.80	2.0	1.2	2.1	1600	66	36	21	33	6.9	4.0
22	.28	.80	2.0	1.2	2.3	2500	64	34	20	27	7.3	2.5
23	.32	.80	2.0	1.3	2.6	1800	61	32	19	23	8.1	1.8
24	.32	.80	2.0	1.4	2.1	1200	59	29	21	20	6.2	1.4
25	.32	.80	2.0	1.8	2.0	950	54	28	35	18	5.6	1.1
26	.24	.90	2.0	1.9	2.0	1130	50	26	32	16	4.2	.68
27	.28	1.0	2.0	1.7	1.9	1760	48	24	27	15	3.9	.48
28	.32	1.1	2.0	1.3	1.8	2210	46	24	23	13	3.2	.63
29	.28	1.3	2.0	1.1	---	2440	44	23	212	12	2.6	.58
30	.32	1.5	2.0	1.0	---	1320	43	26	117	12	2.4	.79
31	.32	---	2.0	1.0	---	1090	---	41	---	12	2.3	---
TOTAL	5.00	22.77	61.2	47.5	44.9	18069.3	5264	1298	1659	1505	248.0	48.30
MEAN	.16	.76	1.97	1.53	1.60	609	175	41.9	55.3	48.5	8.00	1.61
MAX	.32	1.5	2.3	2.0	2.6	2500	1010	79	212	120	11	6.0
MIN	.04	.28	1.4	1.0	1.0	1.7	43	23	19	12	2.3	.33
AC-FT	9.9	45	121	94	89	37430	10440	2570	3290	2990	492	96

WTR YR 1978 TOTAL 29072.97 MEAN 79.7 MAX 2500 MIN .04 AC-FT 57670

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
14...	0930	.04	2300	8.4	10.0	7.5	9.4	86	K10	28	650
NOV											
11...	1100	.42	2850	8.1	5.5	2.0	11.4	88	<1	170	620
DEC											
08...	1330	1.8	3100	--	-15.5	.0	--	--	K4	100	750
JAN											
06...	1220	2.0	2930	7.8	.5	.0	14.0	105	K12	K66	750
FEB											
16...	1200	1.5	2890	8.0	-18.5	.0	12.4	93	K2	K36	840
MAR											
16...	1215	16	1200	8.2	-1.5	.0	12.1	90	21	--	310
28...	1430	2350	--	--	11.0	3.0	--	--	--	--	--
APR											
05...	1230	293	905	8.1	9.0	7.5	10.1	91	77	--	270
07...	1000	286	--	--	9.5	7.5	--	--	--	--	--
MAY											
02...	1200	39	1950	8.3	15.5	12.5	9.4	96	K4	50	580
JUN											
20...	1645	22	1810	8.3	12.0	11.0	9.2	107	60	30	330
27...	1215	27	--	--	--	--	--	--	--	--	--
JUL											
13...	1030	38	1630	8.2	22.0	21.0	7.7	94	250	410	500
AUG											
03...	1030	11	1930	8.4	18.0	18.0	8.5	98	77	110	520
SEP											
15...	1125	2.6	2430	8.3	19.0	13.0	9.1	95	45	68	630

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
14...	210	94	100	310	51	5.3	10	511	11	437	3.4
NOV											
11...	170	85	100	460	61	8.0	12	560	0	459	7.4
DEC											
08...	--	120	110	440	56	7.0	12	--	--	--	--
JAN											
06...	260	120	110	420	54	6.7	11	600	0	490	15
FEB											
16...	300	140	120	450	53	6.7	11	659	0	540	11
MAR											
16...	120	57	40	140	49	3.5	10	237	0	190	2.4
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	100	51	35	100	44	2.6	8.2	205	0	170	2.6
07...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	230	110	73	260	49	4.7	10	422	0	350	3.4
JUN											
20...	0	67	39	340	69	8.2	8.0	466	0	380	3.7
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	220	89	68	210	47	4.1	11	344	0	280	3.5
AUG											
03...	120	110	60	300	55	5.7	11	470	6	395	3.0
SEP											
15...	200	110	87	360	55	6.2	12	521	0	430	4.2

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
14...	850	8.5	.3	6.4	1680	1640	2.23	.18	.00	.03	.57
NOV											
11...	1100	9.9	.3	4.3	2090	2050	2.79	2.32	.03	.05	.81
DEC											
08...	1100	10	.0	8.4	2170	--	2.95	10.5	.09	.22	.30
JAN											
06...	1100	15	.3	11	2150	2080	2.83	11.2	.35	.28	.18
FEB											
16...	1200	16	.2	13	2240	2280	3.10	9.23	.50	.04	.22
MAR											
16...	390	5.0	.1	7.9	780	767	1.04	33.1	.62	.10	1.1
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	320	3.5	.2	7.6	617	627	.85	496	.45	.25	1.1
07...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	750	7.1	.2	5.7	1430	1420	1.93	151	.00	.03	.84
JUN											
20...	520	5.3	.4	7.7	1270	1220	1.66	73.5	.01	.01	.71
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	620	5.5	.2	9.4	1220	1180	1.60	122	.09	.07	1.3
AUG											
03...	810	7.6	.3	10	1590	1550	2.11	46.0	.00	.00	.94
SEP											
15...	900	8.9	.2	8.5	1800	1740	2.37	12.2	.02	.01	.57

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT											
14...	.60	.60	2.7	.06	.01	--	--	--	--	--	--
NOV											
11...	.86	.89	3.9	.06	.02	0	--	1	--	--	300
DEC											
08...	.60	.69	3.1	.03	.00	--	--	--	--	--	--
JAN											
06...	.46	.81	3.6	.03	.01	--	--	--	--	--	--
FEB											
16...	.26	.76	3.4	.03	.01	--	--	--	--	--	--
MAR											
16...	1.3	1.9	8.5	.12	.04	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	1.3	1.8	7.7	.22	.02	0	3	3	170	100	0
07...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	.87	.87	3.9	.08	.00	--	--	--	--	--	--
JUN											
20...	.72	.73	3.2	.08	.01	0	2	2	17	200	300
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	1.4	1.5	6.6	.10	.01	--	--	--	--	--	--
AUG											
03...	.94	.94	4.2	.04	.00	0	--	2	--	--	200
SEP											
15...	.58	.60	2.7	.02	.01	--	--	--	--	--	--

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT 14...	--	--	--	--	750	--	--	--	--	--
NOV 11...	--	--	0	--	730	--	0	--	--	0
DEC 08...	--	--	--	--	660	--	--	--	--	--
JAN 06...	--	--	--	--	630	--	--	--	--	--
FEB 16...	--	--	--	--	650	--	--	--	--	--
MAR 16...	--	--	--	--	290	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
APR 05...	2300	0	0	1	230	0	1	1	10	0
07...	--	--	--	--	--	--	--	--	--	--
MAY 02...	--	--	--	--	490	--	--	--	--	--
JUN 20...	150	10	5	0	340	0	0	0	10	0
27...	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	540	--	--	--	--	--
AUG 03...	--	--	0	--	700	--	0	--	--	10
SEP 15...	--	--	--	--	700	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)
OCT 14...	--	--	--	--	--	--	--	50	--	--	--	--
NOV 11...	--	--	0	--	--	2	--	40	--	1	--	--
DEC 08...	--	--	--	--	--	--	--	30	--	--	--	--
JAN 06...	--	--	--	--	--	--	--	30	--	--	--	--
FEB 16...	--	--	--	--	--	--	--	20	--	--	--	--
MAR 16...	--	--	--	--	--	--	--	100	--	--	--	--
APR 05...	30	4	1	10	11	2	4	30	10	3	20	20
MAY 02...	--	--	--	--	--	--	--	20	--	--	--	--
JUN 20...	40	0	0	8	9	7	8	20	--	--	20	40
JUL 13...	--	--	--	--	--	--	--	50	--	--	--	--
AUG 03...	--	--	0	--	--	9	--	20	--	0	--	--
SEP 15...	--	--	--	--	--	--	--	20	--	--	--	--

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/L AS HG) (71921)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO) (01062)	MOLYB- DENUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01063)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	70	--	50	--	--	.0	--	--	--	3	--	2
DEC 08...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 06...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 16...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 16...	--	--	--	--	--	--	--	--	--	--	--	--
APR 05...	20	330	80	3500	.0	.0	.02	--	0	2	12	0
MAY 02...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 20...	40	200	10	560	.0	.0	.06	3	3	2	5	2
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	60	--	20	--	--	.0	--	--	--	3	--	4
SEP 15...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI) (01068)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G) (01148)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	--	--	0	--	.7	--	20	--	--	--	--	--
DEC 08...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 06...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 16...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 16...	--	--	--	--	--	--	--	--	--	--	--	--
APR 05...	5	0	0	0	1.0	20	0	100	<6.8	21	14	15
MAY 02...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 20...	12	1	0	0	1.6	20	20	17	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	--	--	0	--	.0	--	10	--	--	--	--	--
SEP 15...	--	--	--	--	--	--	--	--	19	.6	13	1.4

LITTLE MISSOURI RIVER BASIN

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT								
14...	13	1.0	52	.01	--	--	--	--
NOV								
11...	12	.9	108	.12	--	--	--	--
DEC								
08...	8.0	.7	79	.38	--	--	--	--
JAN								
06...	6.7	.6	26	.14	--	--	--	--
FEB								
16...	13	.5	100	.40	--	--	--	--
MAR								
16...	13	.4	69	3.0	--	--	--	--
28...	--	--	2560	16200	--	--	--	--
APR								
05...	18	3.9	--	--	--	--	--	--
07...	--	--	286	2170	22	39	64	75
MAY								
02...	8.0	2.8	144	15	4	7	11	12
JUN								
20...	11	2.0	140	8.3	22	39	64	75
27...	--	--	190	14	--	--	--	--
JUL								
13...	8.4	2.2	175	18	--	--	--	--
AUG								
03...	8.2	1.2	124	3.7	--	--	--	--
SEP								
15...	8.1	.5	35	.25	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
APR							
05...	--	--	--	--	--	--	--
07...	81	87	94	96	98	100	--
MAY							
02...	21	34	55	75	87	97	100
JUN							
20...	81	87	94	96	98	100	--
27...	--	--	--	--	--	--	--

DATE	LENGTH OF EXPOSURE (DAYS) (00022)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUORUM (MG/M2) (70958)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN					
20...	49	.604	.039	6.06	1.24
AUG					
03...	21	1.22	.000	3.78	2.76

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 14,77	NOV 11,77	DEC 8,77	JAN 6,78	FEB 16,78	MAR 16,78
TIME	0930	1100	1330	1220	1200	1215
TOTAL CELLS/ML	10000	2000	170	130	160	1000
DIVERSITY: DIVISION	2.0	1.2	1.0	1.5	1.6	1.5
.CLASS	2.2	1.2	1.5	1.5	1.6	1.5
..ORDER	2.4	1.3	1.9	1.5	1.6	1.6
...FAMILY	2.8	1.6	2.7	2.6	2.3	2.4
....GENUS	3.3	1.7	2.9	2.8	2.6	2.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	40	2	--	-	25#	20	21	14	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	61	6
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	420	4	180	9	7	4	6	5	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	28#	17	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	10	1
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	560	5	--	-	--	-	25#	20	28#	18	--	-
....SCENEDESMUS	1100	11	40	2	--	-	--	-	*	0	20	2
....TETRASTRUM	--	-	160	8	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	280	3	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	35#	21	--	-	--	-	10	1
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	20	1	--	-	--	-	--	-	--	-
...ZYGNEMATACEAE												
....MOUGEOTIA	210	2	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	OCT 14,77 0930		NOV 11,77 1100		DEC 8,77 1330		JAN 6,78 1220		FEB 16,78 1200		MAR 16,78 1215	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	140	1	--	-	--	-	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	6	5	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	7	5	20	2
...DIATOMACEAE												
....DIATOMA	--	-	--	-	21	13	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	7	5	100	10
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	7	4	--	-	--	-	10	1
...NAVICULACEAE												
....CALONEIS	--	-	--	-	7	4	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	140	1	20	1	7	4	19	15	35#	23	110	11
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	350	3	--	-	28#	17	13	10	--	-	91	9
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	10	1
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	--	-	--	-	28#	17	--	-	--	-	--	-
....KEPHYRION	910	9	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....DINOBRYON	910	9	--	-	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....RHODOMONAS	70	1	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	1100	11	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	79	4	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	540#	52
....SPIRULINA	--	-	20	1	--	-	--	-	--	-	--	-
..HORMOGONALES	--	-	--	-	--	-	--	-	--	-	--	-
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	560	5	20	1	--	-	6	5	21	14	--	-
....PHACUS	140	1	--	-	--	-	--	-	--	-	10	1
....TRACHELOMONAS	3200#	32	1400#	70	--	-	25#	20	35#	23	30	3
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	70	1	20	1	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE TIME	APR 5,78 1230	MAY 2,78 1200	JUN 20,78 1645	JUL 13,78 1030	AUG 3,78 1030	SEP 15,78 1125
TOTAL CELLS/ML	260	13000	1400	59000	110000	3200
DIVERSITY: DIVISION	1.4	0.8	1.4	1.6	0.5	1.6
.CLASS	1.4	0.8	1.4	1.7	0.5	1.7
..ORDER	0.0	1.0	1.5	1.9	1.3	1.9
...FAMILY	0.0	1.0	2.3	2.4	1.3	2.2
....GENUS	0.0	1.1	2.7	3.5	1.9	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	930	2	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	330	3	44	3	1600	3	900	1	210	7
....CHODATELLA	--	-	--	-	--	-	*	0	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	6500	11	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	1900	3	--	-	--	-
....OOCYSTIS	--	-	430	3	180	13	2300	4	600	1	--	-
....SELENASTRUM	--	-	220	2	--	-	--	-	--	-	20	1
....TREUBARIA	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	2800	5	2400	2	--	-
....CRUCIGENIA	--	-	--	-	59	4	930	2	1500	1	610#	19
....SCENEDESMUS	--	-	--	-	620#	44	4900	8	2600	2	170	5
....TETRASTRUM	--	-	--	-	--	-	1600	3	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	20	8	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	330	3	--	-	1600	3	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	*	0	--	-
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	--	-
...ZYGNEMATACEAE												
....MOUGEOTIA	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 5,78		MAY 2,78		JUN 20,78		JUL 13,78		AUG 3,78		SEP 15,78	
TIME	1230		1200		1645		1030		1030		1125	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	*	0	--	-	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	20	8	11000#	82	44	3	9800#	17	*	0	56	2
....SKELETONEMA	--	-	--	-	--	-	3000	5	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	110	1	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	130	9	--	-	*	0	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....CALONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	29	2	--	-	--	-	--	-
....NAVICULA	--	-	--	-	29	2	--	-	--	-	42	1
....PINNULARIA	--	-	--	-	15	1	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	--	-	220	2	44	3	700	1	--	-	97	3
...SURIRELLACEAE												
....SURIRELLA	--	-	*	0	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-	97	3
....KEPHYRION	--	-	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....DINOBRYON	--	-	--	-	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CHLOROTHECIACEAE												
....OPHIOCYTIUM	--	-	--	-	--	-	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....RHODOMONAS	--	-	--	-	--	-	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	4200	4	--	-
....ANACYSTIS	--	-	--	-	180	13	3700	6	19000#	18	1500#	49
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	4100	4	110	4
....OSCILLATORIA	--	-	--	-	--	-	--	-	68000#	62	--	-
....SPIRULINA	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES	180#	69	--	-	--	-	--	-	--	-	--	-
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	15000#	26	4400	4	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	15	1	*	0	*	0	*	0
....PHACUS	--	-	--	-	29	2	--	-	--	-	--	-
....TRACHELOMONAS	--	-	650	5	--	-	470	1	*	0	180	6
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE	40#	15	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND

LOCATION.--Lat 47°35'25", long 103°15'05", in NW¼SE¼SE¼ sec.35, T.148 N., R.99 W., McKenzie County, Hydrologic Unit 10110205, at bridge on U.S. Highway 85, 17 mi (27 km) upstream from Cherry Creek, and 17.5 mi (28.2 km) south of Watford City.

DRAINAGE AREA.--8,310 mi² (21,520 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year.

REVISED RECORDS (WATER YEARS).--WSP 926: 1935. WSP 1270: 1943.

GAGE.--Water-stage recorder and supplemental nonrecording gage. Datum of gage is 1,929.03 ft (587.968 m) National Geodetic Vertical Datum of 1929. Oct. 2, 1959, to June 17, 1963, water-stage recorder at present site and datum. June 18, 1963, to Nov. 28, 1964, at site 700 ft (210 m) upstream at present datum. See WSP 1729 or 1917 for history of changes prior to Oct. 2, 1959.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--44 years, 613 ft³/s (17.36 m³/s), 444,100 acre-ft/yr (548 hm³/yr); median of yearly mean discharges, 470 ft³/s (13.3 m³/s), 341,000 acre-ft/yr (420 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft³/s (3,120 m³/s) Mar. 25, 1947, gage height, 24.0 ft (7.32 m) from floodmark, site then in use; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,500 ft³/s (892 m³/s) Mar. 30, gage height, 11.08 ft (3.377 m), only peak above base of 8,000 ft³/s (227 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	498	181	20	3.0	.00	.0	21600	636	3420	3280	510	147
2	1050	159	19	3.0	.00	.0	16200	600	3820	2140	475	113
3	781	142	18	2.0	.00	.0	11500	570	3770	1460	445	90
4	788	139	17	2.0	.00	.0	9120	582	3590	1450	360	88
5	998	131	15	1.0	.00	.0	7680	588	3250	1580	340	99
6	844	123	14	1.0	.00	.0	6040	636	3480	1170	310	97
7	606	118	13	.80	.00	.0	4820	932	3070	865	290	85
8	1270	104	12	.50	.00	.0	4110	2100	2570	879	275	78
9	1400	83	11	.20	.00	10	3420	2900	2050	760	256	81
10	1810	51	9.0	.00	.00	50	3060	2610	2570	753	243	78
11	1700	48	9.0	.00	.00	100	2520	3650	1660	666	300	386
12	1420	50	9.0	.00	.00	120	2080	4560	1160	630	256	3210
13	2310	60	10	.00	.00	110	2010	6280	1020	570	230	2270
14	2460	78	12	.00	.00	200	1840	6310	1020	739	210	1230
15	1930	74	15	.00	.00	500	1600	6660	1200	630	188	781
16	1750	68	15	.00	.00	450	1460	6040	1150	490	175	642
17	1520	56	15	.00	.00	350	1300	6000	980	505	150	774
18	1190	50	14	.00	.00	370	1190	5220	781	522	131	924
19	886	43	12	.00	.00	450	1440	3770	636	711	126	1220
20	718	40	10	.00	.00	850	1110	2730	697	998	121	956
21	570	35	9.0	.00	.00	5600	1080	3520	816	858	106	704
22	500	30	9.0	.00	.00	11000	1000	4580	618	612	106	522
23	440	25	8.0	.00	.00	16100	1100	2170	534	690	113	415
24	385	20	8.0	.00	.00	16200	1030	1520	490	594	109	365
25	345	20	7.0	.00	.00	13100	927	1510	630	558	109	320
26	320	20	6.0	.00	.00	14800	872	2590	1470	470	90	280
27	290	20	6.0	.00	.00	18600	816	2910	1120	435	97	230
28	270	20	5.0	.00	.00	23000	767	3030	823	435	83	206
29	238	20	5.0	.00	---	27100	711	2540	788	405	101	185
30	210	20	5.0	.00	---	30900	672	2750	2370	460	172	166
31	195	---	4.0	.00	---	26300	---	4170	---	570	159	---
TOTAL	29692	2028	341.0	13.50	.00	206260.0	113075	94664	51553	26885	6636	16742
MEAN	958	67.6	11.0	.44	.000	6654	3769	3054	1718	867	214	558
MAX	2460	181	20	3.0	.00	30900	21600	6660	3820	3280	510	3210
MIN	195	20	4.0	.00	.00	.00	672	570	490	405	83	78
AC-FT	58890	4020	676	27	.00	409100	224300	187800	102300	53330	13160	33210

CAL YR 1977 TOTAL 115103.00 MEAN 315 MAX 5140 MIN .00 AC-FT 228300
WTR YR 1978 TOTAL 547889.50 MEAN 1501 MAX 30900 MIN .00 AC-FT 1087000

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued
(National water-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1974 to current year.
WATER TEMPERATURES: April 1974 to current year.

REMARKS.--No flow Dec. 31 to Mar. 8.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,400 micromhos Jan. 7-9, 1975; minimum daily, 325 micromhos, Mar. 30, 1978.
WATER TEMPERATURES: Maximum daily, 30.0°C June 5, 1975; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,150 micromhos Aug. 14; minimum daily, 325 micromhos Mar. 30.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 13, 26; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT												
12...	1505	1370	720	8.4	5.0	6200	10.4	87	270	K700	K600	140
NOV												
08...	1030	112	1190	8.3	2.0	--	9.6	76	--	K92	K58	260
DEC												
13...	1145	10	1725	8.2	.0	--	3.8	29	--	--	--	400
MAR												
21...	1740	7740	440	--	2.0	--	--	--	--	--	--	--
24...	1830	16100	--	--	1.0	--	--	--	--	--	--	--
29...	1410	27900	400	--	6.0	--	--	--	--	--	--	--
APR												
04...	1155	9120	515	--	9.0	--	--	--	--	--	--	--
11...	1150	2570	820	8.3	5.5	500	9.0	76	17	K315	K46	200
MAY												
02...	1100	614	1600	8.8	11.0	140	9.4	91	62	K11	K15	380
JUN												
19...	1100	618	1600	8.5	17.5	3.0	7.2	80	78	--	--	370
JUL												
12...	0945	635	1780	8.5	19.0	1400	7.5	86	120	1120	1380	400
AUG												
09...	0935	262	1525	8.1	20.0	250	8.2	96	65	K50	K50	400
SEP												
13...	1030	2290	900	8.4	14.0	9500	7.6	78	700	230	220	97

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT												
12...	30	38	12	110	61	4.0	4.8	130	0	110	.8	290
NOV												
08...	42	64	25	200	62	5.4	6.9	270	0	220	2.2	440
DEC												
13...	10	94	41	310	62	6.7	9.5	470	0	390	4.7	670
MAR												
21...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
04...	--	--	--	--	--	--	--	--	--	--	--	--
11...	67	38	25	100	51	3.1	7.3	160	0	130	1.3	290
MAY												
02...	100	88	39	240	57	5.4	9.2	330	4	280	.9	600
JUN												
19...	190	84	38	250	59	5.7	10	--	--	180	--	670
JUL												
12...	150	86	44	270	59	5.9	11	--	--	250	--	680
AUG												
09...	170	92	41	240	56	5.2	11	--	--	230	--	610
SEP												
13...	0	24	9.1	170	78	7.5	6.2	--	--	120	--	320

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT												
12...	4.6	2.9	.0	6.6	511	530	.70	1890	.61	.01	.62	.04
NOV												
08...	6.2	--	.4	8.9	889	885	1.21	269	--	--	.01	.01
DEC												
13...	8.9	--	.3	12	1380	1380	1.88	37	--	--	.09	.21
MAR												
21...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
04...	--	--	--	--	--	--	--	--	--	--	--	--
11...	5.8	.9	.2	7.5	557	553	.76	3870	.26	.02	.28	.09
MAY												
02...	8.0	.5	.3	8.4	1190	1160	1.62	1970	.00	.01	.00	.01
JUN												
19...	6.6	1.5	.4	9.2	1220	1180	1.66	2040	.29	.03	.32	.01
JUL												
12...	8.2	1.4	.4	9.2	1260	1260	1.71	2160	.02	.02	.04	.03
AUG												
09...	9.0	.6	.4	8.2	1140	1150	1.55	806	.01	.01	.02	.03
SEP												
13...	4.4	3.6	.4	10	665	616	.90	4110	1.2	.04	1.2	.01

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT										
12...	--	--	--	.54	--	--	5.0	.01	120000	100
NOV										
08...	--	--	--	.31	--	--	.05	.01	--	2
DEC										
13...	--	--	--	.42	--	--	.04	.03	--	--
APR										
11...	1.4	1.5	.71	.79	1.6	7.9	.68	.02	80	7
MAY										
02...	.79	.88	.50	.30	.80	3.5	.16	.00	3000	2
JUN										
19...	4.3	4.3	3.9	.41	4.6	20	1.1	.01	--	14
JUL										
12...	3.1	3.1	2.5	.63	3.1	14	1.7	.02	260	28
AUG										
09...	1.3	1.3	.89	.41	1.3	5.8	.20	.00	5400	3
SEP										
13...	19	19	18	1.2	20	89	10	.02	550	50

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT										
12...	--	--	1000	--	--	10	310	--	--	--
NOV										
08...	0	2	400	100	300	--	--	--	--	0
DEC										
13...	--	--	--	--	--	--	--	--	--	--
APR										
11...	6	1	200	200	0	0	200	0	0	1
MAY										
02...	--	--	100	--	--	0	340	0	--	--
JUN										
19...	--	--	400	--	--	0	410	0	--	--
JUL										
12...	--	--	600	--	--	10	450	5	--	--
AUG										
09...	2	1	300	100	200	0	370	1	1	0
SEP										
13...	--	--	3000	--	--	20	180	--	--	--

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT 12...	210	--	--	200	--	--	350	--	--
NOV 08...	8	8	0	<50	<50	0	10	8	2
DEC 13...	--	--	--	--	--	--	--	--	--
APR 11...	20	10	10	10	9	1	26	17	9
MAY 02...	10	--	--	2	--	--	16	--	--
JUN 19...	55	--	--	25	--	--	100	--	--
JUL 12...	60	--	--	36	--	--	120	--	--
AUG 09...	10	10	0	6	4	2	21	18	3
SEP 13...	440	--	--	240	--	--	1000	--	--

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)
OCT 12...	240000	--	--	--	--	--	220	4000	--
NOV 08...	1600	--	30	--	--	3	--	40	30
DEC 13...	--	--	--	--	--	--	--	--	--
APR 11...	23000	--	170	--	--	1	30	700	700
MAY 02...	4800	--	--	--	--	--	60	180	--
JUN 19...	62000	--	--	--	--	--	10	1500	--
JUL 12...	30000	--	--	--	--	--	110	1800	--
AUG 09...	9600	9600	50	10	8	2	90	140	140
SEP 13...	570000	--	--	--	--	--	340	17000	--

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)
OCT 12...	--	.8	--	--	10	400	9	--	--
NOV 08...	8	.0	.0	.0	--	--	0	0	1
DEC 13...	--	--	--	--	--	--	--	--	--
APR 11...	0	.0	.0	.0	4	28	2	1	1
MAY 02...	--	.0	--	--	2	7	1	--	--
JUN 19...	--	.2	--	--	7	71	2	--	--
JUL 12...	--	.1	--	--	4	150	3	--	--
AUG 09...	0	.1	.1	.0	9	19	2	0	2
SEP 13...	--	2.4	--	--	5	830	0	--	--

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT 12...	<10	--	--	1000	--	--	7.4	>10
NOV 08...	<10	<10	0	20	0	20	5.4	.9
DEC 13...	--	--	--	--	--	--	8.3	.3
APR 11...	0	0	0	100	80	20	5.8	--
MAY 02...	0	--	--	60	--	--	7.9	2.9
JUN 19...	0	--	--	270	--	--	11	9.9
JUL 12...	1	--	--	310	--	--	--	--
AUG 09...	0	0	0	60	0	60	6.8	--
SEP 13...	4	--	--	2600	--	--	22	--

DATE	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	ATRA-ZINE, TOTAL (UG/L) (39630)	ATRA-ZINE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39631)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)
NOV 08...	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND
AUG 09...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT-TOM MA-.TERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

Whole water ND - Not detected at 0.01 μg/L level.
Bed material ND - Not detected at 0.1 μg/mg level.

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRI-THION, TOTAL (UG/L) (39790)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 09...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	SIMA-ZINE TOTAL COUL-SON COND. (UG/L) (39025)	SIMA-ZINE IN BOTTOM MATERI-AL (UG/KG DRY SOLIDS) (39046)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39741)
NOV 08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	--	ND	ND	ND	ND	--	--	--	--
AUG 09...	ND	--	ND	--	ND	--	ND	--	--	--	--	--

DATE	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39761)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
OCT 12...	--	--	10500	38800	97	--	--	--	--
NOV 08...	ND	ND	76	23	74	--	--	--	--
APR 11...	--	--	1300	9020	77	--	--	--	--
MAY 02...	--	--	268	444	83	--	--	--	--
JUN 19...	--	--	2680	4470	93	--	--	--	--
21...	--	--	--	--	--	19	95	100	3
JUL 12...	--	--	1820	3120	97	--	--	--	--
AUG 09...	--	--	349	247	98	--	--	--	--
SEP 13...	--	--	29500	182000	96	--	--	--	--

Whole water ND - Not detected at 0.01 µg/L level.
Bed material ND - Not detected at 0.1 µg/mg level.

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	1090	---			---	500	1540	1190	1230	1800	1700
2	1000	1100	---			---	450	1590	1150	1000	1640	1850
3	1090	1100	---			---	455	1600	1180	1040	1600	2000
4	1040	1150	---			---	420	1500	1120	1450	1500	1810
5	1000	1150	---			---	520	1600	1190	1250	1430	1850
6	1050	1190	---			---	580	1590	1200	1300	1700	2000
7	1130	1200	---			---	610	1550	1100	1310	1550	2010
8	1200	950	---			---	600	1410	1080	1450	1600	2000
9	950	1240	---			---	640	1290	1080	1700	1600	2000
10	900	1100	---			840	675	1310	1000	1680	---	1840
11	1400	1400	---			790	800	1400	925	1700	1710	1900
12	840	1450	---			850	825	1210	900	1800	1650	1100
13	900	1510	1900			650	830	1100	1030	1400	1790	900
14	610	1450	1810			560	875	800	1200	1700	2150	1050
15	480	1300	1650			510	890	950	1290	1800	2000	1050
16	501	1100	1750			650	850	860	1300	1650	1800	950
17	503	1150	1800			680	800	860	1400	1720	1810	1300
18	501	1500	1700			690	1110	610	1600	1750	1800	1410
19	507	---	1780			600	1130	700	1600	1690	1750	1190
20	507	---	2100			590	1200	725	1610	1540	1750	990
21	---	---	1800			490	1300	760	1600	1580	1810	1090
22	---	---	1900			450	1010	850	1600	1510	1790	1010
23	506	---	1950			610	1310	890	1550	1650	1810	1350
24	700	---	1910			450	1500	1190	1600	1700	1600	---
25	750	---	1940			400	1400	1090	1850	1790	1640	1300
26	800	---	2000			400	1400	1190	1100	1500	2000	1250
27	850	---	1990			455	1500	1100	1390	1510	1850	1490
28	890	---	2010			440	1600	1000	1400	1750	1820	1560
29	950	---	2000			400	1600	900	1540	1800	1900	1500
30	960	---	1800			325	1550	925	1640	1700	2000	1600
31	1000	---	---			400	---	800	---	1700	1800	---
MEAN	849	1230	1880			556	966	1130	1310	1560	1760	1480

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	5.5	---			---	6.0	14.0	11.0	22.0	19.0	19.0
2	7.0	9.0	---			---	6.0	12.0	12.0	22.0	16.0	17.0
3	9.0	5.0	---			---	7.0	14.0	15.0	23.0	14.0	18.0
4	7.0	6.5	---			---	6.5	12.0	18.0	21.0	16.0	22.0
5	6.0	6.0	---			---	9.0	12.0	23.0	22.0	20.0	21.0
6	7.0	8.0	---			---	8.0	12.0	19.0	20.0	22.0	21.0
7	7.0	5.0	---			---	7.5	13.0	17.0	20.0	17.0	19.0
8	9.0	4.0	---			---	7.0	8.0	16.0	21.0	19.0	25.0
9	9.0	5.0	---			---	7.5	10.0	21.0	18.0	18.0	18.0
10	6.0	3.0	---			.5	9.0	14.0	20.0	18.0	---	20.0
11	6.0	3.0	---			4.0	7.0	12.0	17.0	19.0	21.0	21.0
12	6.0	2.0	---			3.5	6.0	14.0	16.0	22.0	19.0	15.0
13	7.0	2.0	.0			3.0	6.0	15.0	18.0	18.0	28.0	14.0
14	7.0	4.0	.0			2.0	7.5	16.0	20.0	21.0	14.0	12.0
15	6.0	4.0	.0			2.0	8.0	18.0	20.0	22.0	19.0	13.0
16	10.0	3.0	.0			2.0	7.5	19.0	19.0	23.0	17.0	14.0
17	7.0	2.0	.0			2.0	8.0	18.0	17.0	24.0	21.0	12.0
18	7.0	2.0	.0			3.0	7.0	17.0	22.0	20.0	14.0	12.0
19	6.0	---	.0			2.0	6.0	18.0	20.0	19.0	14.0	10.0
20	8.0	---	.0			4.0	5.0	17.0	14.0	19.0	15.0	9.0
21	---	---	.0			2.0	10.0	16.0	19.0	18.0	17.0	10.0
22	---	---	.0			4.0	9.0	17.0	20.0	19.0	17.0	11.0
23	8.0	---	.0			1.0	8.5	21.0	18.0	20.0	17.0	13.0
24	7.0	---	.0			3.0	11.0	19.0	23.0	22.0	23.0	---
25	11.0	---	.0			3.0	10.0	19.0	22.0	22.0	21.0	13.0
26	12.0	---	.0			3.5	12.0	19.0	20.0	21.0	28.0	14.0
27	10.0	---	.0			5.0	12.0	17.0	19.0	21.0	20.0	11.0
28	9.0	---	.0			5.0	12.0	21.0	22.0	22.0	18.0	14.0
29	10.0	---	.0			6.0	16.0	19.0	26.0	19.0	15.0	12.0
30	11.0	---	.0			8.0	14.0	19.0	22.0	19.0	15.0	11.0
31	7.0	---	---			10.0	---	14.0	---	18.0	17.0	---
MEAN	8.0	4.5	.0			3.5	8.5	15.5	19.0	20.5	18.5	15.0

06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	OCT 12,77	NOV 8,77	MAY 2,78	JUL 12,78	AUG 9,78
TIME	1505	1030	1100	0945	0935
TOTAL CELLS/ML	27000	2900	2400	6200	3100
DIVERSITY: DIVISION	0.6	1.2	1.4	1.2	0.6
.CLASS	0.6	1.2	1.4	1.2	0.6
..ORDER	0.7	1.5	2.0	1.3	0.6
...FAMILY	0.8	1.8	2.3	1.3	1.5
....GENUS	1.5	2.5	2.4	1.4	1.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	710	11	180	6
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	140	4
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	100	3	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	440	2	300	10	380#	16	--	-	70	2
....CHLORELLA	440	2	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	22	1	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	130	5	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	78	3	55	2	--	-	70	2
....NEPHROCYTIUM	440	2	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	110	4	--	-	--	-	18	1
....TREUBARIA	--	-	160	5	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	440	2	44	2	110	5	--	-	1900#	61
....TETRASTRUM	--	-	89	3	55	2	--	-	280	9
..TETRASPORALES										
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	--	-	110	5	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	170	6	510#	21	360	6	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	22	1	190	8	--	-	--	-
..PENNALES										
...NAVICULACEAE										
....NAVICULA	880	3	22	1	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	--	-	440	7	18	1
...SURIRELLACEAE										
....SURIRELLA	440	2	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	440	2	1600#	55	960#	40	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....ISOCYSTIS	3900	15	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	4500#	73	460	15
....SCHIZOTHRIX	20000#	73	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	66	2	14	1	89	1	--	-
....TRACHELOMONAS	--	-	--	-	--	-	89	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$) Dry weight	Biomass ($\mu g/m^2$) Ash weight	Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
Aug. 9	15	79	0.000	0.000	0.000	--	Polyethylene strip

06338000 LAKE SAKAKAWEA NEAR RIVERDALE, ND

LOCATION.--Lat 47°30'10", long 101°25'50", in S½ sec.31, T.147 N., R.84 W., Mercer County, Hydrologic Unit 10110101, in control structure of Garrison Dam, 2.5 mi (4.0 km) west of Riverdale, 14 mi (23 km) upstream from Knife River, and at mile 1,389.9 (2,236.3 km).

DRAINAGE AREA.--181,400 mi^2 (469,800 km^2), approximately.

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1966, published as Garrison Reservoir near Riverdale.

REVISED RECORDS.--WSP 1559: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth-fill dam; storage began in November 1953. Maximum capacity, 24,200,000 acre-ft (29.8 km^3) below elevation 1,854.0 ft (565.10 m), top of 29-ft (8.84 m) gates. Normal maximum, 22,700,000 acre-ft (28.0 km^3) below elevation 1,850.0 ft (563.88 m), of which about 4,300,000 acre-ft (5.30 km^3) is designated for flood control. Elevation of crest of spillway, 1,825.0 ft (556.26 m), surmounted by radial gates. Inactive storage, 5,000,000 acre-ft (6.16 km^3) below elevation 1,775.0 ft (541.02 m). Dead storage, zero at elevation 1,672.0 ft (509.63 m). Snake Creek arm of the reservoir has connecting gate to main reservoir, with sill at elevation, 1,810 ft (551.69 m). Figures herein represent total contents.

COOPERATION.--Elevation and contents furnished by Corps of Engineers from capacity table dated July 1971. Elevations are those observed; contents are adjusted for wind effect.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 24,368,000 acre-ft (30.0 km^3) July 25, 1975, elevation, 1,854.6 ft (565.28 m); minimum since first reaching spillway level, 12,527,000 acre-ft (15.4 km^3) March 17, 1963, elevation, 1,816.4 ft (553.64 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,433,000 acre-ft (27.7 km^3) Jul. 25, elevation, 1,849.5 ft (563.73 m); minimum, 14,742,000 acre-ft (18.2 km^3) Mar. 13, elevation, 1,825.2 ft (556.32 m).

MONTHEND ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1835.2	17,644,000	--
Oct. 31	1834.8	17,519,000	-125,000
Nov. 30	1833.0	16,878,000	-641,000
Dec. 31	1831.0	16,371,000	-507,000
CAL YR 1977	--	--	-2,771,000
Jan. 31	1828.0	15,518,000	-853,000
Feb. 28	1825.7	14,896,000	-622,000
Mar. 31	1831.7	16,595,000	+1,699,000
Apr. 30	1836.0	17,883,000	+1,288,000
May 31	1842.5	19,903,000	+2,020,000
June 30	1847.5	21,713,000	+1,810,000
July 31	1849.3	22,398,000	+685,000
Aug. 31	1847.0	21,549,000	-849,000
Sept. 30	1845.7	21,110,000	-439,000
WTR YR 1978	--	--	+3,466,000

06338490 MISSOURI RIVER AT GARRISON DAM, ND

LOCATION.--Lat 47°30'08", long 101°25'50", in S½ sec.31, T.147 N., R.84 W., Mercer County, Hydrologic Unit 10130101, downstream from dam at National Fish Hatchery's supply line from penstocks 4 and 5, in control structure of Garrison Dam, 2.5 mi (4.0 km) west of Riverdale, 14 mi (23 km) upstream from Knife River, and at mile 1,389.9 (2,236.3 km).

DRAINAGE AREA.--181,400 mi² (469,800 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Flow meter and gate readings.

REMARKS.--Records good. Many diversions above station. Flow regulated by Lake Sakakawea (station 06338000). Prior to October 1969 records were obtained at a site 9.1 mi (14.6 km) downstream. Discharges at the downstream site were generally about 7 percent greater than those furnished by the Corps of Engineers for the present site.

COOPERATION.--Records furnished by the Corps of Engineers.

AVERAGE DISCHARGE.--9 years, 26,530 ft³/s (751 m³/s), 19,220,000 acre-ft/yr (23.7 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 65,200 ft³/s (1,850 m³/s) July 25, 1975; minimum daily, 6,000 ft³/s (170 m³/s) Sept. 29, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 39,300 ft³/s (1,113 m³/s) Aug. 20 and Sept. 30; minimum daily, 6,300 ft³/s (178 m³/s) Mar. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14200	12100	25300	22400	30900	27400	20300	15800	22600	38500	38700	37100
2	13700	12200	25200	24200	31300	28000	19600	15700	21100	38400	37800	33300
3	13800	12000	25800	25200	32000	28200	20100	15600	21500	38400	38800	38000
4	14200	11800	25200	26000	28600	27700	20000	15800	21100	38400	38800	37400
5	14100	11700	25200	26000	27300	23100	20100	16300	23500	36800	38400	36000
6	14300	11600	20500	26100	31400	27800	19800	10100	22500	38400	38000	33700
7	13800	12200	20000	25800	31000	26100	21400	9100	22500	38400	38900	34800
8	13300	12500	20400	26500	30500	25800	24000	16100	24700	38100	38800	34200
9	12300	12500	20300	26100	30800	22900	20400	16000	24900	38600	38800	35500
10	12200	13000	20000	26500	29900	19600	24000	16200	27700	38500	38900	32600
11	12100	11900	20200	26900	29800	20500	22400	16100	27400	38500	38900	32200
12	12100	11900	19900	28100	26300	21900	16400	14000	27700	38600	38800	29100
13	11900	12200	17300	28200	28300	21800	17000	12100	30100	38500	38800	28000
14	12000	12000	17100	27100	28100	20700	15600	12100	32200	38500	38800	28500
15	12100	11800	16800	25900	31400	20200	16500	11800	33000	38600	38900	28200
16	12000	11900	17600	27800	29700	20600	8700	12200	31800	38500	39000	27700
17	12100	14100	17200	28500	29600	20300	16400	12400	31700	38400	39000	26600
18	12400	16300	17500	28200	29500	20500	15700	12100	33100	38500	39100	27100
19	11900	16300	18700	29700	28500	16000	16000	12600	34700	38600	39200	27600
20	11900	16000	19400	29700	29900	19900	16100	12300	33400	38500	39300	28200
21	12300	18400	21200	27400	29700	23400	16200	13100	35900	38600	38400	29100
22	12400	18600	21300	24600	29200	22400	16200	13700	38100	38600	38500	29200
23	12300	20700	21200	26800	27700	16200	13500	18200	38100	38500	38800	28900
24	12000	22300	21300	25500	27900	6400	15700	20700	38100	38600	39000	27900
25	12300	25700	20700	27500	26100	6300	15500	22900	36700	38600	39100	31000
26	12200	25200	21700	29900	25600	6400	15000	22600	37700	38600	39100	35900
27	12200	24700	23400	30500	25400	10500	16700	21100	37600	38600	39200	38700
28	11600	27200	24200	30500	27200	10400	16200	20700	37100	38600	35000	39200
29	12100	25800	23700	30700	---	15200	14900	20700	37400	38700	34000	39100
30	12100	25300	24000	31700	---	19900	9200	21100	38400	38700	34300	39300
31	12300	---	22200	31700	---	20400	---	21900	---	38600	31600	---
TOTAL	390200	489900	654500	851700	813600	616500	519600	491100	922300	1192400	1182700	974100
MEAN	12590	16330	21110	27470	29060	19890	17320	15840	30740	38460	38150	32470
MAX	14300	27200	25800	31700	32000	28200	24000	22900	38400	38700	39300	39300
MIN	11600	11600	16800	22400	25400	6300	8700	9100	21100	36800	31600	26600
AC-FT	774000	971700	1298000	1689000	1614000	1223000	1031000	974100	1829000	2365000	2346000	1932000

CAL YR 1977 TOTAL 6772800 MEAN 18560 MAX 32600 MIN 11600 AC-FT 13430000
WTR YR 1978 TOTAL 9098500 MEAN 24930 MAX 39300 MIN 6300 AC-FT 18050000

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at National Fish Hatchery's supply line from penstocks 4 and 5, in control structure of Garrison Dam.

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1971 to current year.
WATER TEMPERATURES: October 1971 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Mar. 5-8, 1974; minimum daily, 553 micromhos Dec. 24, 1975.
WATER TEMPERATURES: Maximum daily, 16.0°C Sept. 19, 1975; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)
OCT											
27...	1515	12200	645	8.4	17.0	11.5	5	1.1	9.6	95	11
NOV											
25...	1400	25700	660	8.4	-11.0	6.0	5	--	11.0	94	--
JAN											
26...	1225	29900	682	8.5	--	1.5	5	--	--	--	--
FEB											
22...	1430	29200	690	8.3	2.0	1.5	2	--	12.5	95	--
APR											
05...	1330	20100	700	8.1	--	2.0	2	--	11.4	88	--
28...	1040	16200	692	8.2	17.0	3.0	5	.50	11.6	89	9
MAY											
24...	1100	20700	670	8.4	22.5	6.0	2	.40	11.9	101	19
24...	1101	20700	--	--	--	--	--	--	--	--	--
JUN											
29...	0930	37400	670	8.3	27.0	10.0	4	.50	10.0	95	11
JUL											
26...	1630	38600	670	8.2	26.0	11.0	5	.60	8.8	85	8
AUG											
30...	1200	34300	708	8.0	--	14.5	7	2.5	7.1	74	17
SEP											
27...	1000	38700	710	8.1	11.0	16.0	--	1.0	8.0	--	10

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
OCT										
27...	<1	<1	230	70	54	23	60	36	1.7	3.9
NOV										
25...	<1	K1	230	75	57	22	61	36	1.7	3.9
JAN										
26...	<1	<1	250	85	62	23	59	34	1.6	4.0
FEB										
22...	<1	<1	240	77	57	24	63	36	1.8	4.2
APR										
05...	<1	K2	220	56	50	23	65	39	1.9	4.0
28...	K1	K3	240	79	56	25	64	36	1.8	4.1
MAY										
24...	K1	K1	240	75	58	23	67	37	1.9	4.2
24...	--	--	230	64	57	21	63	37	1.8	3.1
JUN										
29...	<1	K1	240	84	58	23	63	36	1.8	4.1
JUL										
26...	<1	K1	230	76	55	23	64	37	1.8	4.3
AUG										
30...	K12	K2	230	84	55	23	63	37	1.8	4.4
SEP										
27...	K1	<1	230	80	56	22	67	38	1.9	4.0

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT										
27...	190	2	160	1.2	180	9.0	--	.5	8.2	424
NOV										
25...	190	1	160	1.2	180	9.0	--	.6	8.8	421
JAN										
26...	190	5	160	1.0	200	3.8	--	.6	8.2	443
FEB										
22...	200	0	160	1.6	180	9.8	--	.6	7.6	448
APR										
05...	200	0	160	2.5	180	11	--	.5	7.8	448
28...	200	0	160	2.0	190	11	.3	.6	7.8	452
MAY										
24...	200	0	160	1.3	190	10	1.1	.6	7.5	447
24...	201	0	165	--	190	9.5	--	.5	6.9	476
JUN										
29...	190	0	160	1.5	190	19	.2	.6	7.9	440
JUL										
26...	190	0	160	1.9	180	9.9	.8	.6	7.3	450
AUG										
30...	180	0	150	2.9	200	9.6	1.2	.5	7.9	454
SEP										
27...	--	--	150	--	210	12	.4	.5	7.4	464

DATE	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
27...	430	435	.58	14000	<1	.12	.00	.12	.11	.01
NOV										
25...	--	437	.57	29200	--	--	--	.05	.06	.01
JAN										
26...	--	460	.60	35800	--	--	--	.07	.05	.02
FEB										
22...	--	445	.61	35300	--	--	--	.09	.12	.01
APR										
05...	--	441	.61	24300	--	--	--	.12	.12	.01
28...	--	458	.61	19800	--	.11	.01	.12	.09	.04
MAY										
24...	--	459	.61	25000	--	.06	.00	.06	.06	.00
24...	--	450	.65	26600	--	--	--	--	--	--
JUN										
29...	--	460	.60	44400	--	.10	.01	.11	.14	.01
JUL										
26...	--	439	.61	46900	--	.21	.00	.21	.27	.00
AUG										
30...	--	454	.62	42000	--	.25	.00	.25	.29	.03
SEP										
27...	--	469	.63	48500	--	.22	.01	.23	--	.01

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL) (01107)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT												
27...	.22	.23	--	.12	.35	1.6	.00	.00	0	--	0	3
NOV												
25...	.13	.14	--	.18	.19	.84	.02	.00	--	--	--	--
JAN												
26...	.29	.31	--	.26	.38	1.7	.00	.00	--	--	--	--
FEB												
22...	.04	.05	--	.10	.14	.62	.01	.01	--	--	--	--
APR												
05...	.28	.29	.08	.21	.41	1.8	.00	.00	80	80	0	1
28...	.43	.47	.00	.47	.59	2.6	.03	.01	20	--	--	3
MAY												
24...	.42	.42	.15	.27	.48	2.1	.02	.00	70	70	0	2
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
29...	.23	.24	.00	.26	.35	1.6	.01	.01	40	--	--	2
JUL												
26...	.64	.64	.40	.24	.65	3.8	.00	.00	60	--	--	3
AUG												
30...	.24	.27	.04	.23	.52	2.3	.02	.00	0	--	--	2
SEP												
27...	1.1	1.1	.80	.30	1.3	5.9	.02	.01	50	--	0	1

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)
OCT											
27...	--	3	100	--	0	0	--	10	170	120	--
NOV											
25...	--	--	--	--	--	--	--	--	--	130	--
JAN											
26...	--	--	--	--	--	--	--	--	--	120	--
FEB											
22...	--	--	--	--	--	--	--	--	--	120	--
APR											
05...	0	2	100	0	100	10	10	0	170	130	1
28...	--	--	100	--	--	10	--	--	190	130	1
MAY											
24...	0	2	0	0	0	10	5	5	180	130	1
24...	--	--	--	--	--	--	--	--	--	0	--
JUN											
29...	--	--	400	--	--	0	--	--	210	130	1
JUL											
26...	--	--	200	--	--	0	--	--	150	120	0
AUG											
30...	--	--	200	--	--	10	--	--	190	120	0
SEP											
27...	--	--	0	--	--	0	--	--	180	--	1

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT											
27...	--	0	5	--	15	<50	--	0	<10	--	1
APR											
05...	1	0	10	10	0	0	0	0	0	0	1
28...	--	--	0	--	--	0	--	--	2	--	--
MAY											
24...	0	1	0	0	5	1	1	0	6	5	1
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	--	--	0	--	--	0	--	--	4	--	--
JUL											
26...	--	--	10	--	--	1	--	--	7	--	--
AUG											
30...	0	0	10	--	--	0	0	0	5	3	2
SEP											
27...	--	--	0	--	--	0	--	--	5	--	--

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM SUS-PENDED RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)
OCT											
27...	0	--	20	--	--	1	50	--	50	10	--
NOV											
25...	--	--	20	--	--	--	--	--	--	--	--
JAN											
26...	--	--	90	--	--	--	--	--	--	--	--
FEB											
22...	--	--	10	--	--	--	--	--	--	--	--
APR											
05...	160	--	20	2	2	0	50	0	50	10	10
28...	10	--	10	6	--	--	50	--	--	0	--
MAY											
24...	20	20	0	--	0	--	50	0	50	0	0
24...	--	--	150	--	--	--	--	--	--	--	--
JUN											
29...	150	--	10	2	--	--	50	--	--	5	--
JUL											
26...	60	--	30	2	--	--	50	--	--	10	--
AUG											
30...	110	10	100	2	2	0	50	--	--	10	10
SEP											
27...	140	--	--	4	--	--	50	--	--	10	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	MOLYB-DENUM, SUS-PENDED RECOV. (UG/L AS MO)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
OCT											
27...	0	.0	--	.0	7	--	1	<50	--	0	1
APR											
05...	0	.0	.0	.0	--	--	2	3	3	0	0
28...	--	.0	--	--	5	--	--	2	--	--	0
MAY											
24...	10	.1	.1	.0	2	0	2	6	6	0	1
24...	10	--	--	--	--	--	--	--	--	--	--
JUN											
29...	--	.0	--	--	5	--	--	6	--	--	0
JUL											
26...	--	.0	--	--	5	--	--	9	--	--	1
AUG											
30...	0	.0	--	--	10	--	--	1	--	--	1
SEP											
27...	--	.0	--	--	5	--	--	8	--	--	1

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)
OCT 27...	--	1	<10	--	0	1.0	20	--	10	7.1
NOV 25...	--	--	--	--	--	--	--	--	--	--
JAN 26...	--	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--
APR 05...	0	0	2	2	0	.0	10	0	10	--
28...	--	--	0	--	--	--	10	--	--	--
MAY 24...	0	1	0	0	0	.0	10	5	5	--
24...	--	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	0	--	--	--	10	--	--	--
JUL 26...	--	--	0	--	--	--	10	--	--	--
AUG 30...	--	--	0	--	--	.0	10	10	0	--
SEP 27...	--	--	0	--	--	--	20	--	--	6.8

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 27...	<.4	6.5	.7	5.8	.7	.14	3.0	4.2	.2	.00
NOV 25...	--	--	--	--	--	--	--	2.6	.1	--
JAN 26...	--	--	--	--	--	--	--	4.1	.1	--
FEB 22...	--	--	--	--	--	--	--	2.9	.2	--
APR 05...	--	--	--	--	--	--	--	12	--	.00
28...	--	--	--	--	--	--	--	3.3	.1	--
MAY 24...	--	--	--	--	--	--	--	3.0	.1	.00
24...	--	--	--	--	--	--	--	--	--	--
JUN 29...	--	--	--	--	--	--	--	2.6	.1	--
JUL 26...	--	--	--	--	--	--	--	3.0	.1	--
AUG 30...	--	--	--	--	--	--	--	3.2	--	.00
SEP 27...	<.4	6.9	<.4	6.4	<.4	.08	--	3.6	--	--

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	640	655	665	675	690		---	700	700	695	780
2	---	640	655	665	680	690		---	710	700	700	720
3	---	640	655	665	675	690		695	700	670	700	705
4	---	640	655	665	---	---		---	700	665	700	702
5	---	640	655	665	---	---		---	705	675	695	700
6	---	640	655	665	675	690		---	710	690	695	710
7	---	640	655	665	675	695		---	700	690	700	702
8	---	640	650	665	675	695		680	680	695	700	702
9	---	640	655	665	675	695		---	690	710	700	725
10	---	640	655	665	675	700		---	700	700	695	710
11	---	655	660	675	---	---		---	720	700	710	720
12	---	655	660	670	---	---		---	700	690	705	720
13	---	655	655	670	675	700		680	700	675	700	720
14	---	655	655	670	675	700		680	725	650	710	720
15	---	655	660	670	675	695		680	700	625	710	---
16	---	655	660	675	675	700		680	700	675	710	730
17	---	655	655	675	675	700		690	700	675	725	760
18	---	655	655	675	---	---		---	700	700	710	730
19	---	655	650	675	---	---		690	700	710	615	750
20	---	655	655	675	---	700		---	700	---	600	730
21	---	655	675	675	700	700		---	680	710	---	740
22	---	655	660	675	690	695		690	575	660	---	720
23	---	655	660	675	695	695		695	695	700	---	710
24	---	655	660	675	690	715		695	690	700	---	700
25	---	650	655	675	---	---		690	695	700	---	710
26	640	650	655	675	---	---		650	700	700	---	740
27	640	655	660	675	690	700		680	700	700	---	720
28	640	655	660	675	690	700		695	695	695	780	670
29	640	655	665	675	---	710		700	675	---	720	710
30	640	655	660	675	---	710		720	710	690	750	710
31	640	---	660	675	---	710		700	---	698	740	---
MEAN	640	650	657	671	681	699		688	695	688	703	720

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.0	4.5	---	2.0	2.0		---	10.0	12.0	14.0	15.0
2	---	11.0	4.0	---	2.0	2.0		---	10.0	12.0	14.0	15.5
3	---	11.0	4.0	---	2.0	2.0		3.5	10.0	12.0	13.5	15.5
4	---	11.0	4.0	---	---	---		---	10.5	11.5	14.5	15.5
5	---	11.0	3.5	---	---	---		---	10.0	12.0	13.5	15.0
6	---	11.0	3.5	---	2.0	2.0		---	10.5	12.0	13.0	15.0
7	---	10.5	3.0	---	2.0	2.0		---	10.0	12.0	13.5	15.0
8	---	10.5	3.0	---	3.0	2.0		4.0	9.5	13.0	13.5	14.5
9	---	10.0	---	---	2.5	2.0		---	9.5	12.0	14.0	15.5
10	---	10.0	---	---	2.0	3.0		---	11.0	12.0	14.0	15.5
11	---	9.5	---	---	---	---		---	12.0	12.0	14.0	15.0
12	---	9.5	---	---	---	---		---	12.0	12.0	13.0	15.0
13	---	9.5	---	---	2.5	2.0		4.5	10.5	15.0	13.0	14.5
14	---	9.0	---	---	2.0	3.0		4.5	12.5	13.5	14.0	16.5
15	---	9.0	---	---	2.0	2.0		4.5	11.5	13.0	14.0	---
16	---	9.0	---	---	2.0	2.0		5.0	11.5	12.5	14.0	17.0
17	---	9.0	---	---	2.0	2.0		5.0	11.5	12.5	15.0	16.5
18	---	8.5	---	---	---	---		---	11.5	13.0	14.0	17.0
19	---	8.0	---	---	---	---		6.0	13.0	13.0	15.0	16.5
20	---	7.5	---	---	---	2.0		---	13.5	---	16.0	17.0
21	---	7.0	---	---	3.0	2.0		---	13.5	13.5	---	17.5
22	---	7.0	---	---	2.0	2.0		6.5	13.0	12.5	---	16.0
23	---	6.5	---	---	3.0	2.0		6.5	12.0	12.5	---	16.5
24	---	6.5	---	---	2.0	3.0		7.0	12.0	13.0	---	16.5
25	---	6.0	---	---	---	---		7.0	13.0	12.5	---	17.0
26	11.0	6.0	---	---	---	---		8.0	13.0	12.5	---	18.0
27	11.0	5.5	---	2.0	2.5	3.0		7.5	13.0	12.5	---	17.5
28	11.0	5.0	---	2.0	2.5	2.5		8.0	13.0	12.0	15.0	17.0
29	11.0	5.0	---	2.0	---	3.0		8.0	12.0	---	15.0	17.5
30	11.0	5.0	---	2.0	---	3.0		8.0	12.0	13.0	15.0	17.5
31	11.0	---	---	2.0	---	2.5		7.0	---	13.0	14.5	---
MEAN	11.0	8.5	3.5	2.0	2.5	2.5		6.0	11.5	12.5	14.0	16.0

MISSOURI RIVER MAIN STEM

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 25,77		APR 5,78		APR 28,78		MAY 24,78	
TIME	1400		1330		1040		1100	
TOTAL CELLS/ML	280		320		0		72	
DIVERSITY: DIVISION	1.0		1.6		0.0		0.7	
.CLASS	1.0		1.6		0.0		0.7	
..ORDER	1.3		1.9		0.0		0.7	
...FAMILY	1.3		1.9		0.0		0.7	
....GENUS	1.3		1.9		0.0		0.7	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	7	3	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	29	9	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	43	14	--	-	57#	80
....STEPHANODISCUS	14	5	--	-	--	-	--	-
..PENNALES								
...FRAGILARIACEAE								
....ASTERIONELLA	170#	62	43	14	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	87#	31	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	170#	55	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	29	9	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	14#	20

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	JUN 29,78	JUL 26,78	AUG 30,78
TIME	0930	1630	1200
TOTAL CELLS/ML	93	710	130
DIVERSITY: DIVISION	0.8	0.8	0.9
.CLASS	0.8	0.8	0.9
..ORDER	0.8	0.9	0.9
...FAMILY	0.8	0.9	0.9
....GENUS	0.8	0.9	0.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	14	11
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	11	8
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...FRAGILARIACEAE						
....ASTERIONELLA	69#	75	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	490#	69	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	220#	31	110#	81
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	23#	25	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06338490 MISSOURI RIVER AT GARRISON DAM, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass (μg/m²)		Chlorophyll a (μg/m²)	Chlorophyll b (μg/m²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 27	35	5,120	4,020	0.172	0.003	6,395	Polyethylene strip
Apr. 28	20	945	394	.210	.150	2,623	Polyethylene strip

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C
Aug. 29, 1978			0300	7.0	12.5	1300	7.1	13.5
2000	7.2	14.5	0400	7.1	12.0	1400	7.0	13.5
2100	7.4	14.5	0500	7.1	11.5	1500	7.2	14.0
2200	7.2	14.5	0600	7.1	12.0	1600	6.8	14.0
2300	7.4	14.5	0700	6.8	13.0	1700	7.1	14.0
2400	7.4	14.5	0800	6.9	13.5	1800	7.0	14.0
			0900	7.2	13.5	1900	7.1	14.0
Aug. 30, 1978			1000	7.2	13.5	2000	6.8	14.0
0100	7.3	14.5	1100	7.2	13.5	2100	7.0	14.0
0200	6.9	14.0	1200	7.1	13.5			

06339010 MISSOURI RIVER ABOVE STANTON, ND

LOCATION.--Lat 47°21'54", long 101°21'28", E½ sec.22, T.145 N., R.84 W., Mercer County, Hydrologic Unit 10130101, 9 mi (14 km) south of Riverdale, and at mile 1,378 (2,233 km).

DRAINAGE AREA.--181,400 mi² (469,800 km²), approximately.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1600.00 ft (487.680 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 72.24 ft (22.019 m) Jan. 29, 1977; minimum daily recorded, 64.80 ft (19.751 m) May 7, 1978.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65.73	65.45	68.00				---	66.42	67.59	70.38	70.44	70.14
2	65.88	65.49	67.99				---	66.50	67.65	70.40	70.29	69.61
3	65.67	65.45	68.05				---	66.64	67.43	70.41	70.42	70.36
4	65.90	65.50	68.15				---	66.55	67.52	70.42	70.43	70.25
5	65.78	65.35	67.76				---	66.70	67.57	70.16	70.40	70.12
6	65.88	65.37	67.18				---	65.74	67.68	70.39	70.35	69.63
7	65.88	65.41	67.09				---	64.80	67.51	70.41	70.45	69.80
8	65.75	65.50	66.76				---	66.14	68.00	70.38	70.44	69.75
9	65.64	65.57	63.91				---	66.57	68.29	70.43	70.45	69.94
10	65.36	65.63	---				---	66.68	68.61	70.46	70.47	69.55
11	65.30	65.41	---				---	66.36	68.67	70.50	70.48	69.61
12	65.54	65.37	---				---	66.39	68.50	70.47	70.48	69.10
13	65.36	65.38	---				---	65.87	68.96	70.47	70.48	68.86
14	65.46	65.54	---				66.45	65.60	69.46	70.49	70.47	68.83
15	65.47	65.41	---				66.72	65.89	69.44	70.52	70.47	68.92
16	65.29	65.40	---				65.27	65.85	69.35	70.53	70.49	68.85
17	65.58	65.66	---				66.46	65.79	69.31	70.51	70.48	68.52
18	66.44	66.32	---				66.40	65.76	69.52	70.49	70.46	68.57
19	65.41	66.31	---				66.82	65.65	69.70	70.53	70.51	68.58
20	---	66.21	---				66.40	65.69	69.52	70.51	70.51	68.78
21	---	66.36	---				66.75	66.01	69.90	70.51	70.40	68.86
22	65.45	66.83	---				66.50	65.95	70.30	70.52	70.46	68.91
23	65.57	66.84	---				66.11	66.47	70.33	70.50	70.41	68.96
24	65.54	67.30	---				66.64	67.42	70.34	70.52	70.50	68.80
25	65.53	68.01	---				66.47	67.41	70.11	70.50	70.52	69.03
26	65.56	67.78	---				66.44	67.90	70.22	70.49	70.51	70.19
27	65.48	67.66	---				66.66	67.71	70.21	70.50	70.49	70.20
28	65.38	68.35	---				66.68	67.34	70.18	70.45	69.89	70.29
29	65.41	68.11	---				66.49	67.30	70.23	70.46	69.69	70.47
30	65.49	67.97	---				65.39	67.40	70.36	70.46	69.76	70.52
31	65.43	---	---				---	67.39	---	70.45	69.39	---
TOTAL	---	1986.94	---	---	---	---	---	2059.89	2072.46	2184.22	2180.99	2084.00
MEAN	---	66.23	---	---	---	---	---	66.45	69.08	70.46	70.35	69.47
MAX	---	68.35	---	---	---	---	---	67.90	70.36	70.53	70.52	70.52
MIN	---	65.35	---	---	---	---	---	64.80	67.43	70.16	69.39	68.52

06339100 KNIFE RIVER AT MANNING, ND

LOCATION.--Lat 47°14'10", long 102°46'10", in SE¼NW¼ sec.6, T.143 N., R.95 W., Dunn County, Hydrologic Unit 10130201, on left bank 50 ft (15 m) downstream from bridge on State Highway 22, and 0.4 mi (0.6 km) north of Manning.

DRAINAGE AREA.--205 mi² (531 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,156.55 ft (657.316 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--11 years, 25.6 ft³/s (0.725 m³/s) 18,550 acre-ft/yr (22.9 hm³/yr); median of yearly mean discharges, 28 ft³/s (0.79 m³/s), 20,300 acre-ft/yr (25 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,940 ft³/s (83.3 m³/s) June 15, 1970, gage height, 16.20 ft (4.938 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	1600	*1,950	55.2	*15.33	4.673	May 23	1300	1,100	31.2	13.73	4.185
May 22	2300	824	23.3	12.12	3.694	Sept.13	0500	1,110	31.4	13.75	4.191

Minimum discharge, 0.86 ft³/s (0.024 m³/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.0	1.2	2.0	1.0	1.5	350	12	42	49	1.8	2.3
2	2.7	1.0	1.2	2.0	1.0	1.5	150	11	47	44	1.8	1.6
3	6.4	1.0	1.2	2.0	1.0	1.5	96	9.7	37	20	1.7	1.6
4	7.4	1.0	1.2	2.0	1.0	1.5	145	10	23	13	1.7	1.6
5	5.5	1.1	1.0	2.0	1.0	1.5	154	13	15	9.7	1.6	1.6
6	4.1	1.2	1.0	2.0	1.0	1.5	149	14	10	6.4	1.5	1.7
7	3.2	1.3	1.0	2.0	1.0	1.5	121	21	7.4	5.0	1.5	1.7
8	3.9	1.3	1.0	2.0	1.0	1.5	74	95	6.1	5.8	1.4	1.6
9	3.9	1.3	1.0	2.0	1.0	1.5	49	266	5.3	5.0	1.3	1.5
10	2.9	1.4	1.0	2.0	1.0	1.5	41	117	4.3	4.3	1.2	1.8
11	2.7	1.3	1.0	2.0	1.0	2.0	39	45	4.3	3.5	1.1	32
12	2.5	1.4	1.0	2.0	1.0	2.0	39	46	4.3	3.7	1.1	757
13	2.2	1.4	1.5	1.5	1.0	2.5	39	137	4.3	3.5	1.1	885
14	2.2	1.5	2.5	1.5	1.0	3.0	38	49	4.3	3.3	.96	206
15	2.1	1.5	3.5	1.5	1.0	3.0	31	28	4.1	2.9	.96	48
16	1.7	1.4	4.0	1.5	1.0	3.0	28	19	4.1	2.6	.96	19
17	1.5	1.4	4.0	1.5	1.0	3.0	27	15	4.3	2.4	1.0	12
18	1.4	1.4	4.0	1.5	1.0	3.0	27	11	4.1	2.2	.96	9.4
19	1.4	1.4	3.5	1.5	1.0	25	27	9.0	3.7	3.2	.96	7.4
20	1.2	1.4	3.0	1.5	1.0	70	24	7.8	3.7	3.2	1.0	9.0
21	1.0	1.4	3.0	1.5	1.0	200	22	7.0	3.7	10	1.0	9.0
22	1.2	1.4	3.0	1.5	1.0	500	18	129	3.5	11	.96	10
23	1.2	1.2	3.0	1.5	1.5	850	18	584	3.3	8.2	.96	8.6
24	1.0	1.2	3.0	1.5	2.0	920	16	52	3.5	6.1	1.1	5.5
25	1.1	1.2	2.5	1.5	2.0	900	20	21	3.5	4.3	1.1	4.3
26	.91	1.2	2.5	1.5	1.5	1120	21	15	3.9	3.3	1.1	3.3
27	.86	1.2	2.5	1.5	1.5	1630	18	11	3.7	2.9	47	3.3
28	1.0	1.2	2.5	1.5	1.5	1110	15	7.8	3.3	2.5	52	3.3
29	1.1	1.2	2.5	1.5	---	606	14	6.4	8.2	2.1	7.0	2.9
30	1.0	1.2	2.5	1.5	---	583	12	7.0	23	1.9	4.3	2.8
31	1.0	---	2.5	1.5	---	565	---	30	---	1.8	3.1	---
TOTAL	72.67	38.1	68.3	52.5	32.0	9115.5	1824	1805.7	297.9	246.8	145.22	2054.8
MEAN	2.34	1.27	2.20	1.69	1.14	294	60.8	58.2	9.93	7.96	4.68	68.5
MAX	7.4	1.5	4.0	2.0	2.0	1630	350	584	47	49	52	885
MIN	.86	1.0	1.0	1.5	1.0	1.5	12	6.4	3.3	1.8	.96	1.5
AC-FT	144	76	135	104	63	18080	3620	3580	591	490	288	4080

CAL YR 1977 TOTAL 2536.30 MEAN 6.95 MAX 450 MIN .01 AC-FT 5030
WTR YR 1978 TOTAL 15753.49 MEAN 43.2 MAX 1630 MIN .86 AC-FT 31250

06339100 KNIFE RIVER AT MANNING, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
13...	0930	2.1	1490	8.0	17.5	6.0	11.6	101	34	680	230
17...	1510	1.4	1910	--	11.0	7.0	--	--	--	--	--
NOV											
15...	1530	1.5	2010	8.4	6.5	2.5	11.1	88	68	400	230
16...	1050	1.4	2150	--	2.0	1.0	--	--	--	--	--
DEC											
13...	0845	1.5	2350	7.9	3.0	.0	10.4	78	33	140	310
21...	1605	3.0	2430	--	-1.0	.0	--	--	--	--	--
JAN											
17...	1215	1.5	2420	8.1	-19.5	.0	10.2	76	K8	140	300
18...	1425	1.6	2590	--	-19.0	.0	--	--	--	--	--
FEB											
21...	0845	1.0	2580	7.9	4.5	.0	10.2	76	K9	1500	300
21...	1130	1.1	2400	--	-1.0	1.0	--	--	--	--	--
MAR											
10...	0830	1.5	2100	8.0	2.0	.5	12.4	94	K11	380	260
20...	1435	52	260	--	2.0	1.0	--	--	--	--	--
23...	1500	910	270	--	2.0	.5	--	--	--	--	--
27...	1845	1840	--	--	10.0	2.0	--	--	--	--	--
30...	1055	538	310	7.6	18.0	5.0	--	--	--	--	74
APR											
06...	1000	157	790	--	10.0	7.5	--	--	--	--	--
21...	0830	23	1210	8.0	10.0	6.0	11.6	101	--	--	230
27...	1335	18	1350	--	--	14.0	--	--	--	--	--
MAY											
03...	0830	10	1520	8.1	12.0	13.0	8.4	86	51	140	270
24...	1300	48	595	--	25.0	16.0	--	--	--	--	--
JUN											
23...	1205	3.3	2000	--	30.0	18.0	--	--	--	--	--
28...	1500	3.3	1980	8.2	23.0	14.0	7.5	96	5800	260	350
JUL											
20...	1310	3.2	1640	8.4	21.5	19.0	7.0	81	610	1300	270
20...	1530	3.0	1610	--	18.0	23.0	--	--	--	--	--
AUG											
07...	0830	1.5	1500	8.3	20.5	20.0	7.0	81	230	130	250
15...	1400	1.8	1700	--	26.0	22.0	--	--	--	--	--
SEP											
14...	1615	105	455	--	--	13.0	--	--	--	--	--
20...	0915	9.0	820	8.0	5.0	9.5	8.8	83	340	700	170
20...	1210	8.5	890	--	9.0	9.5	--	--	--	--	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
13...	0	46	27	270	71	7.8	7.9	516	0	420	13
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	0	47	27	410	79	12	7.2	640	4	430	4.1
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	0	62	38	470	76	12	8.9	756	0	620	15
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	0	61	36	470	77	12	7.0	784	0	640	10
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	0	62	36	490	77	12	7.6	782	0	640	16
21...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	0	51	32	400	77	11	5.8	693	0	570	11
30...	0	17	7.7	43	54	2.2	4.7	102	0	88	4.1
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
21...	0	51	24	190	64	5.5	5.9	344	0	280	5.5
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	0	57	32	260	67	6.8	6.9	464	0	380	5.9
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
23...	--	--	--	--	--	--	--	--	--	--	--
28...	0	79	37	340	67	7.9	8.0	582	0	480	5.9
JUL											
20...	0	60	29	300	70	8.0	7.6	510	6	430	3.3
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
07...	0	57	27	300	71	8.2	7.8	544	0	450	4.4
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	--	--	--	--	--	--	--	--	--	--	--
20...	0	48	16	140	63	4.7	7.7	253	0	210	4.0

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339100 KNIFE RIVER AT MANNING, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
13...	390	5.2	.5	7.5	1020	1000	1.36	5.67	.03	.05	.91
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	540	5.2	.7	7.1	1380	1370	1.86	5.55	.10	.06	.84
16...	--	-	--	--	--	--	--	--	--	--	--
DEC											
13...	670	7.3	.7	7.7	1640	1640	2.23	6.64	.39	.18	.43
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	680	6.3	.7	12	1610	1660	2.26	6.72	.48	.08	.32
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	670	5.9	.8	12	1640	.1670	2.27	4.51	.62	.08	.35
21...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	560	5.1	.7	10	1450	1410	1.92	5.71	.55	.05	.50
30...	74	5.3	.1	5.5	236	208	.28	302	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
21...	350	6.6	.4	7.8	806	806	1.10	50.1	.08	.05	.85
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	460	7.2	.4	5.4	1050	1060	1.44	28.6	.00	.05	.65
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
23...	--	--	--	--	--	--	--	11.9	--	--	--
28...	550	9.1	.6	7.1	1330	1320	1.80	11.8	.00	.00	2.3
JUL											
20...	450	20	.5	10	1150	1140	1.55	9.85	.01	.00	1.4
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
07...	410	10	.5	7.8	1100	1090	1.48	4.41	.01	.01	1.5
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	--	--	--	--	--	--	--	--	--	--	--
20...	240	5.6	.2	8.4	569	583	.79*	14.2	.08	.13	.84
20...	--	--	--	--	--	--	--	--	--	--	--

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)
OCT											
13...	.96	.99	4.4	.11	.03	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	.90	1.0	4.4	.08	.03	20	--	1	--	--	0
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	.61	1.0	4.4	.09	.04	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	.40	.88	3.9	.08	.07	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	.43	1.1	4.6	.09	.04	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	.55	1.1	4.9	.08	03	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
21...	.90	.98	4.3	.06	.00	10	2	1	--	400	200
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	.70	.70	3.1	.07	.02	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
23...	--	--	--	--	--	--	--	--	--	--	--
28...	2.3	2.3	10	.09	.02	0	3	2	110	300	200
JUL											
20...	1.4	1.4	6.2	.10	.01	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
07...	1.5	1.5	6.7	.07	.00	20	--	1	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	--	--	--	--	--	--	--	--	--	--	--
20...	.97	1.1	4.6	.12	.03	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--

06339100 KNIFE RIVER AT MANNING, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
13...	--	--	--	--	420	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	0	--	490	--	0	--	--	4
16...	--	--	--	--	--	--	--	--	--	--
DEC										
13...	--	--	--	--	550	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
JAN										
17...	--	--	--	--	520	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
FEB										
21...	--	--	--	--	520	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
MAR										
10...	--	--	--	--	470	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	180	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
21...	140	10	0	1	240	0	2	0	0	0
27...	--	--	--	--	--	--	--	--	--	--
MAY										
03...	--	--	--	--	330	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
JUN										
23...	--	--	--	--	--	--	--	--	--	--
28...	250	0	0	0	470	1	1	0	0	0
JUL										
20...	--	--	--	--	430	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
07...	--	--	0	--	450	--	0	--	--	0
15...	--	--	--	--	--	--	--	--	--	--
SEP										
18...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	200	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CU) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
13...	--	--	--	--	--	--	--	40	--	--
NOV										
15...	--	--	0	--	--	2	--	70	--	1
DEC										
13...	--	--	--	--	--	--	--	130	--	--
JAN										
17...	--	--	--	--	--	--	--	90	--	--
FEB										
21...	--	--	--	--	--	--	--	80	--	--
MAR										
10...	--	--	--	--	--	--	--	90	--	--
30...	--	--	--	--	--	--	--	180	--	--
APR										
21...	4	1	0	4	9	3	8	60	19	28
MAY										
03...	--	--	--	--	--	--	--	50	--	--
JUN										
28...	4	4	0	10	7	6	10	50	--	0
JUL										
20...	--	--	--	--	--	--	--	80	--	--
AUG										
07...	--	--	1	--	--	4	--	30	--	2
SEP										
20...	--	--	--	--	--	--	--	70	--	--

06339100 KNIFE RIVER AT MANNING, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
APR									
21...	20	20	22	12	1.3	12	3.2	--	--
MAY									
03...	--	--	--	--	--	--	--	--	--
JUN									
28...	10	0	20	--	--	--	--	--	--
JUL									
20...	--	--	--	--	--	--	--	--	--
AUG									
07...	--	10	--	--	--	--	--	--	--
SEP									
20...	--	--	--	<6.1	3.2	11	4.4	9.8	4.2

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)
OCT										
13...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	40	--	30	--	--	.0	--	--
MAR										
10...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	160	--	--	--	--	--
APR										
21...	10	30	20	140	80	500	.0	.0	.04	5
MAY										
03...	--	--	--	--	--	--	--	--	--	--
JUN										
28...	0	30	40	210	10	1100	.0	.0	.06	4
JUL										
20...	--	--	--	--	--	--	--	--	--	--
AUG										
07...	--	--	40	--	40	--	--	.0	--	--
SEP										
20...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)
OCT									
13...	--	--	--	--	--	--	--	--	--
NOV									
15...	--	2	--	3	--	--	0	--	.5
APR									
21...	0	0	5	5	20	0	0	0	.0
MAY									
03...	--	--	--	--	--	--	--	--	--
JUN									
28...	1	3	8	5	20	0	0	0	.0
JUL									
20...	--	--	--	--	--	--	--	--	--
AUG									
07...	--	3	--	3	--	--	0	--	.0
SEP									
20...	--	--	--	--	--	--	--	--	--

06339100 KNIFE RIVER AT MANNING, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
OCT 13...	12	1.1	146	.83	--	--	--	--
NOV 15...	11	.2	28	.11	--	--	--	--
DEC 13...	13	.9	62	.28	--	--	--	--
JAN 17...	10	1.3	66	.27	--	--	--	--
FEB 21...	9.1	1.1	53	.14	--	--	--	--
MAR 10...	9.6	1.4	136	.55	--	--	--	--
APR 06...	--	--	173	71	79	90	26	46
21...	9.7	1.4	87	5.4	--	--	--	--
MAY 03...	11	2.0	92	2.5	--	--	5	8
JUN 28...	13	1.1	72	.64	--	--	6	9
JUL 20...	14	2.7	86	.74	--	--	--	--
AUG 07...	15	1.0	56	.23	--	--	--	--
SEP 20...	11	1.8	123	3.0	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT 13...	--	--	--	--	--	--	--	--
NOV 15...	--	--	--	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--
FEB 21...	--	--	--	--	--	--	--	--
MAR 10...	--	--	--	--	--	--	--	--
APR 06...	85	94	94	98	99	100	--	--
21...	--	--	--	--	--	--	--	--
MAY 03...	14	36	46	55	72	89	97	100
JUN 28...	17	31	38	46	64	81	92	100
JUL 20...	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--
SEP 20...	--	--	--	--	--	--	--	--

06339100 KNIFE RIVER AT MANNING, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 13,77	NOV 15,77	DEC 13,77	JAN 17,78	FEB 21,78	MAR 10,78
TIME	0930	1530	0845	1215	0845	0830
TOTAL CELLS/ML	350000	7200	140	120	1100	210
DIVERSITY: DIVISION	0.1	1.5	0.9	1.9	0.0	0.0
.CLASS	0.1	1.5	0.9	1.9	0.0	0.0
..ORDER	0.1	1.7	0.9	1.9	0.0	0.0
...FAMILY	0.1	1.8	1.7	2.7	0.0	0.9
....GENUS	0.2	2.7	1.7	2.8	0.0	1.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	*	0	--	-	--	-	7	6	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	*	0	2700#	37	--	-	14	12	--	-	69#	33
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	200	3	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	20	14	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	520	7	--	-	7	6	--	-	--	-
....OOCYSTIS	*	0	520	7	--	-	--	-	--	-	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	*	0	--	-	--	-	--	-	--	-	92#	44
....SCENEDESMUS	*	0	130	2	80#	57	*	0	1100#	100	46#	22
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..ULOTRICHALES												
...MICROSPORACEAE												
....MICROSPORA	--	-	260	4	--	-	--	-	--	-	--	-
...ULOTRICHACEAE												
....ULOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	*	0	--	-	--	-	--	-	--	-	--	-
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	--	-
..CHLOROCOCCALES												
...OOCYSTACEAE												
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	*	0	--	-	--	-	--	-	--	-	--	-
....SKELETONEMA	*	0	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	20	14	7	6	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	20	14	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	--	-	7	6	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	*	0	130	2	--	-	14	12	--	-	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	7	6	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	1600#	22	--	-	43#	35	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	350000#	99	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06339100 KNIFE RIVER AT MANNING, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 13,77		NOV 15,77		DEC 13,77		JAN 17,78		FEB 21,78		MAR 10,78	
TIME	0930		1530		0845		1215		0845		0830	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	390	5	--	-	--	-	--	-	--	-
....PHACUS	*	0	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	*	0	850	12	--	-	14	12	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339100 KNIFE RIVER AT MANNING, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 21,78		MAY 3,78		JUN 28,78		JUL 20,78		AUG 7,78		SEP 20,78	
TIME	0830		0830		1500		1310		0830		0915	
TOTAL CELLS/ML	12000		7200		1900		64000		10000		5400	
DIVERSITY: DIVISION	1.6		1.8		1.7		1.3		1.7		0.6	
.CLASS	1.6		1.8		1.7		1.3		1.7		0.6	
..ORDER	2.0		2.2		2.2		2.0		2.0		0.7	
...FAMILY	2.0		2.3		2.4		2.3		2.3		1.3	
....GENUS	2.0		2.5		2.6		3.1		2.6		1.3	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	*	0
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	390	5	59	3	2100	3	--	-	97	2
....CHLORELLA	--	-	110	2	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	*	0	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	*	0	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	11000#	18	1300	13	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	1400	2	--	-	--	-
....OOCYSTIS	4000#	34	--	-	15	1	--	-	--	-	--	-
....SELENASTRUM	--	-	280	4	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	*	0	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	1900	3	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	3200	5	400	4	56	1
....SCENEDESMUS	--	-	--	-	440#	23	2200	3	860	8	56	1
....TETRASTRUM	--	-	--	-	--	-	--	-	130	1	--	-
..ULOTRICHALES												
...MICROSPURACEAE												
....MICROSPORA	--	-	--	-	--	-	--	-	--	-	--	-
...ULOTRICHACEAE												
....ULOTHRIX	--	-	--	-	--	-	--	-	--	-	28	1
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	1400	12	720	10	--	-	790	1	--	-	42	1
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	*	0
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	--	-	29	2	--	-	--	-	--	-
..CHLOROCOCCALES												
...OOCYSTACEAE												
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	260	3	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	4300#	37	3100#	43	--	-	630	1	200	2	83	2
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	*	0	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	29	2	--	-	--	-	--	-
....SYNEDRA	--	-	55	1	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	*	0	--	-	--	-
....NAVICULA	--	-	55	1	--	-	--	-	--	-	28	1
...NITZSCHIACEAE												
....NITZSCHIA	--	-	170	2	29	2	790	1	--	-	83	2
...SURIRELLACEAE												
....SURIRELLA	--	-	55	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	790	8	--	-
....ANACYSTIS	1200	10	--	-	530#	27	20000#	32	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	7900	12	--	-	--	-
....OSCILLATORIA	--	-	1300#	18	260	14	8200	13	3400#	33	4200#	78
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	670	12

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06339100 KNIFE RIVER AT MANNING, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 21,78		MAY 3,78		JUN 28,78		JUL 20,78		AUG 7,78		SEP 20,78	
TIME	0830		0830		1500		1310		0830		0915	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	370#	19	950	1	*	0	28	1
....PHACUS	--	-	--	-	190	10	--	-	*	0	--	-
....TRACHELOMONAS	860	7	940	13	--	-	1300	2	2900#	28	*	0
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

KNIFE RIVER BASIN

06339300 KNIFE RIVER AT MARSHALL, ND

LOCATION.--Lat 47°08'17", long 102°20'00", NW¼ sec.10, T.142 N., R.92 W., Dunn County, Hydrologic Unit 10130201, and on right bank 250 ft (75 m) downstream from bridge on State Highway 8 in Marshall.

DRAINAGE AREA.--722 mi² (1,870 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except for the winter period, which is fair.

AVERAGE DISCHARGE.--8 years, 76.9 ft³/s (2.178 m³/s), 55,700 acre-ft/yr (69.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,080 ft³/s (257 m³/s) Mar. 14, 1972, gage height, 19.37 ft (5.904 m); minimum, 0.18 ft³/s (0.005 m³/s) July 19, 20, 1973, gage height, 2.48 ft (0.756 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1943 reached a stage of at least 18.5 ft (5.639 m) prior to dike construction and is believed to be highest stage experienced since 1915.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s (21.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	--	--	--	a*16.14	4.919	Sept. 15	1130	965	27.9	9.46	2.883
Mar. 26	1900	*3,680	104	15.77	4.807						

Minimum daily, 4.0 ft³/s (0.11 m³/s) Dec. 8-12, Feb. 27 to Mar. 8.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	6.8	5.0	5.5	4.5	4.0	1170	50	38	28	9.3	32
2	15	7.5	5.0	5.5	4.5	4.0	868	47	57	59	9.5	23
3	24	7.5	5.0	5.5	4.5	4.0	477	44	97	80	9.0	19
4	30	7.7	4.5	5.5	4.5	4.0	344	47	84	56	9.3	17
5	29	8.2	4.5	5.5	4.5	4.0	331	48	64	42	8.4	15
6	22	7.9	4.5	5.5	4.5	4.0	368	55	48	25	8.2	15
7	20	9.3	4.5	5.5	4.5	4.0	294	54	36	25	7.7	14
8	19	5.8	4.0	5.0	4.5	4.0	257	86	30	19	7.5	14
9	23	4.9	4.0	5.0	4.5	4.5	195	160	26	17	7.3	14
10	32	4.9	4.0	5.0	4.5	5.0	150	364	23	17	7.1	14
11	36	5.2	4.0	5.0	4.5	6.0	122	332	21	16	7.1	18
12	31	6.4	4.0	5.0	4.5	8.0	109	198	20	17	7.3	23
13	23	6.0	4.5	5.0	4.5	10	101	183	19	80	7.7	157
14	19	6.0	5.0	5.0	4.5	12	96	215	18	37	7.9	686
15	15	6.0	6.0	5.0	4.5	12	93	201	17	24	7.7	925
16	13	6.0	7.0	5.0	4.5	12	90	112	17	23	7.7	411
17	12	6.0	7.0	5.0	4.5	14	83	78	17	17	7.1	111
18	10	6.0	6.5	5.0	4.5	115	79	60	16	14	6.6	64
19	7.9	5.5	6.0	5.0	4.5	180	75	49	16	14	6.6	45
20	7.3	5.5	5.5	4.5	4.5	289	74	43	15	13	6.6	39
21	6.6	5.5	5.5	4.5	4.5	1090	71	38	16	14	6.6	36
22	5.8	5.0	5.5	4.5	5.0	1780	67	36	16	14	6.6	34
23	5.6	5.0	5.5	4.5	5.5	2190	66	34	15	17	7.9	31
24	5.8	4.5	5.5	4.5	6.0	2180	64	190	19	20	11	30
25	6.0	4.5	5.5	4.5	5.0	2180	64	566	19	19	15	28
26	5.6	4.5	5.5	4.5	4.5	3280	67	180	87	15	18	26
27	5.4	4.5	5.5	4.5	4.0	3280	67	83	48	14	19	23
28	4.7	4.5	5.5	4.5	4.0	2950	64	78	25	12	20	22
29	5.2	4.5	5.5	4.5	---	2660	58	50	23	10	22	20
30	5.8	4.5	5.5	4.5	---	1980	54	42	21	10	86	19
31	6.6	---	5.5	4.5	---	1430	---	38	---	9.3	72	---
TOTAL	466.3	176.1	161.0	152.5	128.5	25699.5	6018	3761	968	777.3	439.7	2925
MEAN	15.0	5.87	5.19	4.92	4.59	829	201	121	32.3	25.1	14.2	97.5
MAX	36	9.3	7.0	5.5	6.0	3280	1170	566	97	80	86	925
MIN	4.7	4.5	4.0	4.5	4.0	4.0	54	34	15	9.3	6.6	14
AC-FT	925	349	319	302	255	50970	11940	7460	1920	1540	872	5800

CAL YR 1977 TOTAL 9838.4 MEAN 27.0 MAX 1040 MIN 1.0 AC-FT 19510
WTR YR 1978 TOTAL 41672.9 MEAN 114 MAX 3280 MIN 4.0 AC-FT 82660

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
13...	0945	24	1500	8.3	13.5	7.0	12.3	107	140	1200	190
18...	1245	10	1550	--	16.0	7.0	--	--	--	--	--
NOV											
16...	1100	5.8	1950	8.5	7.0	1.5	13.1	101	27	100	260
16...	1515	6.3	2060	--	3.0	1.5	--	--	--	--	--
DEC											
14...	0930	5.0	2700	7.9	8.0	.0	9.4	69	32	140	380
21...	1415	5.4	2850	--	.0	.0	--	--	--	--	--
JAN											
17...	1300	5.0	2920	7.8	-8.0	.5	10.1	75	31	180	390
18...	1215	5.3	2890	--	-19.0	.0	--	--	--	--	--
FEB											
21...	1600	4.6	2700	--	2.0	.0	--	--	--	--	--
22...	0900	5.0	2910	7.9	2.0	.0	9.3	69	53	K170	360
MAR											
09...	1230	4.5	3680	7.9	11.0	.0	8.8	65	73	240	340
19...	1100	181	830	--	1.0	1.5	--	--	--	--	--
24...	1455	2200	290	--	--	.5	--	--	--	--	--
27...	1125	3370	320	--	--	3.0	--	--	--	--	--
APR											
06...	1315	392	940	8.1	12.0	8.5	--	--	--	--	170
11...	0930	123	1080	8.7	14.0	6.0	11.1	96	K7	500	220
25...	1555	63	1630	--	--	12.0	--	--	--	--	--
MAY											
04...	1000	46	1860	8.3	10.0	14.0	8.8	91	410	180	380
23...	1600	34	1800	--	27.0	23.0	--	--	--	--	--
JUN											
21...	0945	16	1850	8.4	14.5	10.0	9.0	102	510	240	710
22...	1250	15	1990	--	26.0	21.0	--	--	--	--	--
JUL											
18...	0800	14	1750	8.5	18.5	22.0	7.2	88	K720	330	260
20...	1340	14	1960	--	23.0	22.0	--	--	--	--	--
AUG											
03...	0900	8.7	1560	8.4	17.5	18.0	7.6	86	200	190	290
17...	1115	7.1	1850	--	15.0	19.0	--	--	--	--	--
SEP											
14...	1405	730	585	--	14.0	14.0	--	--	--	--	--
15...	1300	974	485	--	24.0	14.0	--	--	--	--	--
20...	1830	39	925	--	8.0	11.0	--	--	--	--	--
21...	0800	36	915	7.8	3.0	9.5	9.7	92	550	1000	180

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
13...	0	39	22	270	75	8.6	8.5	400	0	328	3.2
18...	--	--	--	--	--	--	--	--	--	--	--
NOV											
16...	0	51	32	390	76	11	8.0	604	10	512	3.2
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	0	71	48	520	74	12	11	814	0	670	16
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	0	72	50	540	75	12	8.7	860	0	710	22
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	0	69	46	540	76	12	9.3	820	0	673	17
MAR											
09...	0	64	43	550	77	13	8.7	828	0	680	17
APR											
06...	0	37	19	130	61	4.3	6.1	215	0	176	2.7
11...	0	45	25	160	61	4.7	8.0	250	19	237	.9
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	0	76	46	330	65	7.4	8.2	525	0	430	4.2
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	220	120	100	340	51	5.5	11	578	10	490	3.8
22...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	0	51	31	280	70	7.6	9.5	443	8	377	2.3
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	0	57	35	320	70	8.2	9.0	530	14	460	3.6
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
21...	0	44	17	140	62	4.5	8.6	293	0	240	7.4

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
13...	470	5.3	.4	8.3	984	1020	1.39	66	.07	.02	.98
18...	--	--	--	--	--	--	--	--	--	--	--
NOV											
16...	540	5.3	.6	11	1330	1350	1.84	21	.05	.04	.57
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	820	6.6	.7	11	1880	1890	2.57	25	.32	.18	.45
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	770	7.1	.7	14	1970	1890	2.57	25	.52	.09	.65
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	780	6.2	.7	16	1850	1870	2.54	25	.65	.10	.24
MAR											
09...	760	6.4	.8	14	1820	1860	2.53	22	.65	.05	.50
APR											
06...	260	3.5	.2	8.6	579	570	.78	603	--	--	--
11...	320	18	.2	8.2	706	727	.99	241	.20	.12	.85
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	620	6.3	.4	6.2	1320	1350	1.84	168	.00	.04	.83
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	930	7.9	.2	5.9	1780	1810	2.46	78	.01	.00	.84
22...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	450	5.6	.4	7.9	1080	1060	1.44	40	.02	.02	2.0
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	490	6.2	.5	9.1	1210	1200	1.63	28	.00	.00	1.1
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
21...	240	5.1	.2	9.1	628	609	.83	59	.15	.13	1.8

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)
OCT											
13...	1.0	1.1	4.7	.18	.05	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
NOV											
16...	.61	.66	2.9	.04	.02	20	--	1	--	--	0
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	.63	.95	4.2	.04	.01	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	.74	1.3	5.6	.06	.03	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	.34	.99	4.4	.06	.03	--	--	--	--	--	--
MAR											
09...	.55	1.2	5.3	.10	.08	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
11...	.97	1.2	5.2	.14	.04	0	2	2	47	300	0
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	.87	.87	3.9	.08	.02	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	.84	.85	3.8	.04	.01	0	2	2	21	200	200
22...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	2.0	2.0	8.9	.14	.01	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	1.1	1.1	4.9	.07	.00	50	--	2	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
21...	1.9	2.1	9.1	.16	.00	--	--	--	--	--	--

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
13...	--	--	--	--	320	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
NOV										
16...	--	--	0	--	310	--	0	--	--	0
16...	--	--	--	--	--	--	--	--	--	--
DEC										
14...	--	--	--	--	440	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
JAN										
17...	--	--	--	--	450	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
FEB										
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	430	--	--	--	--	--
MAR										
09...	--	--	--	--	440	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
APR										
06...	--	--	--	--	50	--	--	--	--	--
11...	250	0	0	0	190	1	0	0	0	0
25...	--	--	--	--	--	--	--	--	--	--
MAY										
04...	--	--	--	--	300	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
21...	0	0	0	0	740	0	0	0	10	10
22...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	--	--	--	--	320	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
03...	--	--	0	--	350	--	0	--	--	0
17...	--	--	--	--	--	--	--	--	--	--
SEP										
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	190	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
OCT												
13...	--	--	--	--	--	--	--	100	--	--	--	--
NOV												
16...	--	--	0	--	--	1	--	60	1	--	--	40
DEC												
14...	--	--	--	--	--	--	--	60	--	--	--	--
JAN												
17...	--	--	--	--	--	--	--	60	--	--	--	--
FEB												
22...	--	--	--	--	--	--	--	60	--	--	--	--
MAR												
09...	--	--	--	--	--	--	--	40	--	--	--	--
APR												
06...	--	--	--	--	--	--	--	40	--	--	--	--
11...	10	2	0	10	6	4	13	80	--	20	20	30
MAY												
04...	--	--	--	--	--	--	--	100	--	--	--	--
JUN												
21...	0	0	0	8	8	5	8	50	--	20	60	60
JUL												
18...	--	--	--	--	--	--	--	70	--	--	--	--
AUG												
03...	--	--	0	--	--	7	--	50	1	--	--	40
SEP												
21...	--	--	--	--	--	--	--	40	--	--	--	--

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
16...	--	30	--	--	.0	--	--	--	2	--	3	--
DEC												
14...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
09...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	--	20	--	--	--	--	--	--	--	--	--	--
11...	100	50	650	.0	.0	.04	3	0	2	8	2	25
MAY												
04...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
21...	150	20	500	.0	.0	.05	6	5	5	4	0	11
JUL												
18...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
03...	--	20	--	--	.0	--	--	--	3	--	6	--
SEP												
21...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT											
13...	--	--	--	--	--	--	--	--	--	--	--
NOV											
16...	--	0	--	.0	--	10	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	--	--	--	--	--	--	--	--	--	--	--
FEB											
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
11...	0	0	0	.0	20	10	29	<0.7	4.0	12	4.9
MAY											
04...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	0	0	0	.0	20	20	17	--	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	--	0	--	1.2	--	10	--	--	--	--	--
SEP											
21...	--	--	--	--	--	--	--	9.2	3.0	15	5.0

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 13...	15	3.0	161	10	--	--	--	--	--
NOV 16...	11	--	41	.64	--	--	--	--	--
DEC 14...	12	--	67	.90	--	--	--	--	--
JAN 17...	11	.6	83	1.1	--	--	--	--	--
FEB 22...	9.4	.4	34	.45	--	--	--	--	--
MAR 09...	11	--	50	.60	--	--	--	--	--
APR 06...	--	--	257	272	70	91	7	12	27
11...	11	1.2	--	--	--	--	--	--	--
MAY 04...	11	1.7	147	18	--	--	1	2	4
JUN 21...	9.3	.9	--	--	--	--	2	2	6
JUL 18...	12	3.3	154	5.8	--	--	--	--	--
AUG 03...	12	1.6	99	2.3	--	--	--	--	--
SEP 21...	7.5	2.3	192	19	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
OCT 13...	--	--	--	--	--	--	--	--
NOV 16...	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--
MAR 09...	--	--	--	--	--	--	--	--
APR 06...	59	69	75	84	92	97	100	--
11...	--	--	--	--	--	--	--	--
MAY 04...	16	29	36	47	62	74	92	100
JUN 21...	14	25	34	50	63	76	89	100
JUL 18...	--	--	--	--	--	--	--	--
AUG 03...	--	--	--	--	--	--	--	--
SEP 21...	--	--	--	--	--	--	--	--

06339500 KNIFE RIVER AT MARSHALL, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 13,77	NOV 16,77	DEC 14,77	JAN 17,78	FEB 22,78	MAR 9,78
TIME	0945	1100	1030	1300	0900	1030
TOTAL CELLS/ML	59000	6100	110	160	43	100
DIVERSITY: DIVISION	0.6	1.3	1.5	1.7	1.3	1.4
.CLASS	0.6	1.3	1.5	1.7	1.3	1.4
..ORDER	0.7	1.3	1.5	1.9	1.9	1.4
...FAMILY	0.9	1.6	1.5	1.9	2.3	1.4
....GENUS	1.0	1.9	1.9	2.0	2.3	1.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1800	3	3100#	50	30#	27	46#	29	7#	17	9	8
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....CHODATELLA	*	0	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	120	2	15	13	7	4	--	-	9	8
....NEPHROCYTIUM	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	*	0	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	*	0	240	4	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	*	0	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	860	1	330	5	--	-	--	-	--	-	--	-
....TETRASTRUM	460	1	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	800	1	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	--	-	7	4	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	460	1	--	-	--	-	--	-	14#	33	--	-
....SKELETONEMA	510	1	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	*	0	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	--	-	7	4	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	7#	17	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	*	0	--	-	23#	20	--	-	--	-	26#	25
...NITZSCHIACEAE												
....NITZSCHIA	*	0	--	-	--	-	--	-	7#	17	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 13,77		NOV 16,77		DEC 14,77		JAN 17,78		FEB 22,78		MAR 9,78	
TIME	0945		1100		1030		1300		0900		1230	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	*	0	1400#	23	--	-	27#	17	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	1600	3	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	51000#	87	--	-	--	-	--	-	--	-	60#	58
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	--	-	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	980#	16	46#	40	68#	42	7#	17	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 11,78		MAY 4,78		JUN 21,78		JUL 18,78		AUG 3,78		SEP 21,78	
TIME	0930		1000		0945		0800		0900		0800	
TOTAL CELLS/ML	4500		2000		180000		17000		97000		7500	
DIVERSITY: DIVISION	1.2		2.0		0.6		1.4		0.7		0.5	
.CLASS	1.2		2.0		0.6		1.4		0.7		0.5	
..ORDER	1.5		2.3		0.7		1.6		0.9		1.0	
...FAMILY	1.7		2.5		0.8		2.0		1.0		1.2	
....GENUS	1.7		2.5		1.0		2.8		1.2		1.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	*	0	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	*	0	--	-
....MICRACTINIUM	110	3	--	-	990	1	--	-	*	0	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	190	9	2800	2	560	3	*	0	44	1
....CHLORELLA	--	-	--	-	--	-	--	-	*	0	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	4900	3	1500	8	11000	11	67	1
....KIRCHNERIELLA	--	-	--	-	*	0	110	1	*	0	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	--	-	*	0	--	-
....OOCYSTIS	--	-	--	-	1500	1	--	-	*	0	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	110	1
....TETRAEDRON	--	-	--	-	*	0	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	*	0	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	5900	3	450	3	*	0	--	-
....CRUCIGENIA	--	-	--	-	*	0	3800#	22	860	1	--	-
....SCENEDESMUS	--	-	58	3	990	1	900	5	860	1	89	1
....TETRASTRUM	--	-	--	-	--	-	450	3	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	1500	2	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	1300#	28	29	1	1200	1	340	2	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	*	0	--	-
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	170	4	170	9	*	0	6600#	38	*	0	--	-
....SKELETONEMA	--	-	--	-	--	-	1100	6	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....RHOPALODIA	2500#	56	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	280	14	--	-	--	-	*	0	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	57	1	15	1	--	-	--	-	--	-	--	-
....NAVICULA	--	-	15	1	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	57	1	--	-	*	0	340	2	--	-	110	1
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	87	4	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339300 KNIFE RIVER AT MARSHALL, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 11,78		MAY 4,78		JUN 21,78		JUL 18,78		AUG 3,78		SEP 21,78	
TIME	0930		1000		0945		0800		0900		0800	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	*	0	--	-
....ANACYSTIS	--	-	--	-	1700	1	1000	6	*	0	870	12
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	8700#	43	1600000#	87	--	-	790000#	81	50000#	78
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	220	3
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	1000	1	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	*	0	--	-	*	0	44	1
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	*	0
....TRACHELOMONAS	290	6	320#	16	*	0	220	1	*	0	110	1
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	*	0	--	-
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	110	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUORUM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 04...	23	.030	.000	.709	.236
JUN 21...	48	.189	.006	1.94	78.3
AUG 03...	16	.100	.000	.315	.079

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND

LOCATION.--Lat 47°06'25", long 102°03'05", in SE¼NW¼ sec.23, T.142 N., R.90 W., Mercer County, Hydrologic Unit 10130201, on right bank 60 ft (18 m) upstream from highway bridge, and 13.5 mi (21.7 km) south of Golden Valley.

DRAINAGE AREA.--82 mi² (212 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,915.17 ft (583.744 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--11 years, 8.95 ft³/s (0.253 m³/s), 6,480 acre-ft/yr (7.99 hm³/yr); median of yearly mean discharges, 6.7 ft³/s (0.19 m³/s), 4,850 acre-ft/yr (6.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s (283 m³/s) May 8, 1970, gage height, 23.55 ft (7.178 m); no flow for several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,160 ft³/s (32.9 m³/s) Mar. 27, gage height, 17.60 ft (5.364 m), only peak above base of 100 ft³/s (2.83 m³/s); no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	.06	.00	.05	.00	.00	202	4.1	10	.00	.00	.00
2	.11	.11	.00	.05	.00	.00	111	5.0	5.8	2.6	.00	.00
3	.04	.13	.00	.05	.00	.00	109	7.1	2.8	1.3	.00	.00
4	.03	.13	.00	.05	.00	.00	216	7.4	1.3	.50	.00	.00
5	.03	.13	.00	.05	.00	.00	148	8.0	1.1	.17	.00	.00
6	.03	.13	.00	.05	.00	.00	153	10	.70	.09	.00	.00
7	.03	.08	.00	.05	.00	.00	89	11	.33	.05	.00	.00
8	.02	.06	.00	.03	.00	.00	48	14	.26	.01	.00	.00
9	9.1	.05	.00	.03	.00	.00	27	25	.29	.00	.00	.00
10	15	.04	.00	.03	.00	.00	20	30	.26	.00	.00	.00
11	6.4	.03	.00	.02	.00	.00	20	19	.37	.00	.00	.00
12	7.8	.02	.00	.02	.00	.00	18	18	.60	.00	.00	.00
13	1.3	.02	.05	.01	.00	.00	15	32	.37	.00	.00	.00
14	.80	.02	.10	.01	.00	.00	11	18	.26	.00	.00	.00
15	.70	.02	.25	.01	.00	.00	9.0	11	.23	.00	.00	.00
16	.60	.02	.25	.01	.00	.20	8.5	7.1	.09	1.0	.00	.00
17	.65	.01	.20	.01	.00	.30	8.5	4.4	.05	.50	.00	.00
18	.50	.01	.20	.00	.00	.40	9.5	4.0	.05	.45	.00	.00
19	.26	.01	.20	.00	.00	.20	9.5	3.9	.02	.45	.00	.00
20	.23	.01	.20	.00	.00	3.8	7.4	3.6	.00	.15	.00	.00
21	.26	.01	.15	.00	.00	2.8	6.5	3.4	.00	.19	.00	.00
22	.23	.00	.15	.00	.00	40	4.9	3.5	.00	.11	.00	.00
23	.15	.00	.15	.00	.00	295	4.3	6.8	.00	.06	.00	.00
24	.11	.00	.15	.00	.00	459	4.6	2.6	.00	.05	.00	.00
25	.09	.00	.15	.00	.00	448	5.2	3.2	.00	.05	.00	.00
26	.06	.00	.10	.00	.00	857	5.5	3.3	.00	.01	.00	.00
27	.06	.00	.10	.00	.00	982	4.7	3.8	.00	.00	.00	.00
28	.06	.00	.10	.00	.00	562	4.0	3.4	.00	.00	.00	.00
29	.05	.00	.10	.00	---	304	4.1	3.0	.00	.00	.00	.00
30	.05	.00	.10	.00	---	324	4.0	3.4	.00	.00	.00	.00
31	.03	---	.10	.00	---	305	---	8.0	---	.00	.00	---
TOTAL	45.07	1.10	2.80	.53	.00	4583.70	1287.2	287.0	24.88	7.74	.00	.00
MEAN	1.45	.037	.090	.017	.000	148	42.9	9.26	.83	.25	.000	.000
MAX	15	.13	.25	.05	.00	982	216	32	10	2.6	.00	.00
MIN	.02	.00	.00	.00	.00	.00	4.0	2.6	.00	.00	.00	.00
AC-FT	89	2.2	5.6	1.1	.00	9090	2550	569	49	15	.00	.00

CAL YR 1977 TOTAL 863.09 MEAN 2.36 MAX 135 MIN .00 AC-FT 1710
WTR YR 1978 TOTAL 6240.02 MEAN 17.1 MAX 982 MIN .00 AC-FT 12380

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
18...	1820	.45	790	--	12.0	7.0	--	--	--	--	--
20...	1130	.29	760	7.2	16.0	6.5	11.0	98	K38	144	89
NOV											
11...	1100	.03	1080	8.0	4.0	2.0	9.4	73	<10	K40	120
17...	1135	.01	1200	--	--	1.0	--	--	--	--	--
DEC											
13...	0920	.05	1385	8.1	-2.0	1.0	8.1	61	59	470	160
22...	1525	.14	1360	--	-1.0	.0	--	--	--	--	--
JAN											
17...	0840	.01	2590	7.6	-14.0	.0	5.1	38	K2	K9	290
17...	1515	.01	2510	--	-10.0	.0	--	--	--	--	--
MAR											
19...	1350	.20	1210	--	2.0	2.0	--	--	--	--	--
22...	1515	44	360	--	3.0	2.0	--	--	--	--	--
25...	1415	384	250	--	12.0	2.0	--	--	--	--	--
28...	1700	460	250	--	--	2.0	--	--	--	--	--
30...	0915	354	390	8.1	19.0	3.0	10.8	86	61	2000	84
30...	1525	323	380	7.8	25.0	9.0	--	--	--	--	71
APR											
06...	1640	148	730	--	11.0	8.0	--	--	--	--	--
13...	1130	12	1160	8.2	8.0	5.5	12.7	99	59	2200	240
25...	1245	4.8	1630	--	--	11.0	--	--	--	--	--
MAY											
16...	0830	7.3	2430	8.4	22.0	15.0	8.1	87	93	290	440
23...	1200	3.1	2450	--	26.0	19.0	--	--	--	--	--
JUN											
16...	1130	.09	2520	8.3	13.0	10.0	3.6	41	160	450	450
19...	1115	.02	3000	--	17.0	17.0	--	--	--	--	--
JUL											
18...	1100	.45	2040	8.5	23.0	20.0	4.4	51	250	420	420
20...	1050	.20	2440	--	19.0	19.0	--	--	--	--	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
18...	--	--	--	--	--	--	--	--	--	--	--
20...	0	19	10	140	76	6.5	7.1	216	0	177	22
NOV											
11...	0	26	14	210	77	8.3	8.9	393	0	322	6.3
17...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	0	36	18	270	77	9.2	9.2	567	0	465	7.2
22...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	0	59	35	510	78	13	11	886	0	730	36
17...	--	--	--	--	--	--	--	--	--	--	--
MAR											
19...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
30...	2	18	9.6	49	54	2.3	6.2	100	0	82	1.3
30...	1	15	8.2	46	56	2.4	5.2	86	0	71	2.2
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
13...	52	46	31	170	59	4.8	8.4	229	0	190	2.3
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
16...	130	75	62	420	67	8.7	11	374	4	313	2.4
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
16...	13	82	60	450	68	9.2	13	533	0	440	4.3
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	0	74	56	470	70	10	13	611	14	524	3.2
20...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
18...	--	--	--	--	--	--	--	--	--	--	--
20...	180	4.0	.1	13	486	480	.65	.38	.01	.05	1.2
NOV											
11...	240	6.7	.2	12	716	713	.97	.06	.00	.06	1.1
17...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	280	11	.2	15	912	917	1.25	.12	.07	.40	.80
22...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	580	21	.5	18	1670	1670	2.27	.05	.29	.68	.72
17...	--	--	--	--	--	--	--	--	--	--	--
MAR											
19...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
30...	100	2.0	.1	5.3	289	242	.33	231	.23	.30	1.4
30...	100	3.1	.2	6.3	227	227	.31	198	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
13...	400	3.3	.1	8.0	762	780	1.06	25.3	.02	.03	.75
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
16...	940	25	.2	4.9	1720	1730	2.35	34.1	.00	.03	1.1
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
16...	920	5.4	.3	1.8	1850	1800	2.45	.44	.02	.04	.96
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	870	6.7	.3	1.3	1840	1810	2.46	2.20	.00	.00	1.3
20...	--	--	--	--	--	--	--	--	--	--	--

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)
OCT											
18...	--	--	--	--	--	--	--	--	--	--	--
20...	1.2	1.2	5.4	.24	.10	--	--	--	--	--	--
NOV											
11...	1.2	1.2	5.3	.29	.13	170	--	2	--	--	100
17...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	1.2	1.3	5.6	.19	.12	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	1.4	1.7	7.5	.33	.21	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
MAR											
19...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
30...	1.7	1.9	8.5	.44	.18	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
13...	.78	.80	3.5	.10	.04	0	2	3	4	300	0
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
16...	1.1	1.1	4.9	.10	.07	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
16...	1.0	1.0	4.5	.07	.03	20	3	3	14	200	200
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	1.3	1.3	5.8	.11	.06	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
18...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	210	--	--	--	--	--
NOV										
11...	--	--	0	--	280	--	0	--	--	4
17...	--	--	--	--	--	--	--	--	--	--
DEC										
13...	--	--	--	--	380	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JAN										
17...	--	--	--	--	510	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
MAR										
19...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	100	--	--	--	--	--
30...	--	--	--	--	90	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
13...	140	10	0	0	150	3	1	0	0	0
25...	--	--	--	--	--	--	--	--	--	--
MAY										
16...	--	--	--	--	260	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
JUN										
16...	200	0	0	1	370	1	1	0	5	0
19...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	--	--	--	--	420	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)
OCT												
20...	--	--	--	--	--	--	--	240	--	--	--	--
NOV												
11...	--	--	0	--	--	2	--	450	--	2	--	--
DEC												
13...	--	--	--	--	--	--	--	240	--	--	--	--
JAN												
17...	--	--	--	--	--	--	--	180	--	--	--	--
MAR												
30...	--	--	--	--	--	--	--	100	--	--	--	--
APR												
13...	7	0	0	8	3	4	20	80	--	9	20	20
MAY												
16...	--	--	--	--	--	--	--	50	--	--	--	--
JUN												
16...	5	3	0	10	11	9	73	20	4	0	20	50
JUL												
18...	--	--	--	--	--	--	--	80	--	--	--	--

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
OCT 20...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	20	--	100	--	--	.0	--	--	--	1	--	3
DEC 13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	--	--	100	--	--	--	--	--	--	--	--	--
APR 13...	30	80	40	430	.0	.0	.03	3	1	1	5	4
MAY 16...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	50	270	120	820	.0	.0	.03	6	6	2	9	5
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 20...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	--	--	0	--	3.4	--	30	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	--	--	--	--	--	--	--	--	--	--	--	--
APR 13...	21	0	0	0	1.0	10	10	41	<10	1.8	15	2.5
MAY 16...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	22	1	0	0	.2	30	20	63	--	--	--	--
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT									
20...	20	2.8	93	.07	--	--	--	--	--
NOV									
11...	13	3.0	133	.01	--	--	--	--	--
DEC									
13...	14	1.1	50	.01	--	--		--	--
JAN									
17...	16	1.3	74	.00	--	--		--	--
MAR									
30...	9.6	3.9	864	826	42	68	62	86	99
APR									
13...	11	1.2	26	.84	--	--	--	--	--
MAY									
16...	20	.7	15	.30	--	--	--	--	--
JUN									
16...	18	.6	93	.02	--	--	16	21	43
JUL									
18...	19	1.1	50	.06	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
OCT								
20...	--	--	--	--	--	--	--	--
NOV								
11...	--	--	--	--	--	--	--	--
DEC								
13...	--	--	--	--	--	--	--	--
JAN								
17...	--	--	--	--	--	--	--	--
MAR								
30...	100	100	100	100	--	--	--	--
APR								
13...	--	--	--	--	--	--	--	--
MAY								
16...	--	--	--	--	--	--	--	--
JUN								
16...	54	57	63	72	80	87	90	100
JUL								
18...	--	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY					
16...	33	5.48	.410	6.93	6.06
JUL					
18...	6	.290	.030	2.13	1.81
AUG					
08...	21	1.50	.410	13.2	9.53

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	OCT 20,77		NOV 11,77		DEC 13,77		JAN 17,78		MAR 30,78	
TIME	1130		1100		0920		0840		0915	
TOTAL CELLS/ML	4400		7500		410		74		2500	
DIVERSITY: DIVISION	0.7		1.1		0.7		0.8		0.4	
.CLASS	0.7		1.1		0.7		0.8		0.4	
..ORDER	1.6		2.2		0.7		0.8		0.4	
...FAMILY	1.7		2.2		0.7		0.8		0.6	
....GENUS	2.0		2.6		0.7		0.8		0.6	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	--	-	--	-	*	0
...OOCYSTACEAE										
....ANKISTRODESMUS	880#	20	1000	14	15	4	55#	75	--	-
....CHLORELLA	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	230	5	230	3	--	-	--	-	--	-
....OOCYSTIS	--	-	2200#	29	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	180	4	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES										
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	460	6	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	2600#	58	1500#	20	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	180	4	580	8	--	-	--	-	14	1
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	14	1
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	--	-	14	1
....RHOPALODIA	--	-	--	-	--	-	--	-	14	1
...FRAGILARIACEAE										
....SYNEDRA	--	-	--	-	--	-	--	-	14	1
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	14	1
...NAVICULACEAE										
....CALONEIS	--	-	--	-	--	-	--	-	14	1
....NAVICULA	--	-	--	-	8	2	--	-	72	3
...NITZSCHIACEAE										
....NITZSCHIA	--	-	460	6	--	-	--	-	29	1
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	18#	25	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	46	1	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	46	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	350#	87	--	-	2300#	92
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	92	2	580	8	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-
....PHACUS	92	2	--	-	--	-	--	-	--	-
....TRACHELOMONAS	92	2	460	6	31	8	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339490 ELM CREEK NEAR GOLDEN VALLEY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE TIME	APR 13,78 1130		MAY 16,78 0830		JUN 16,78 1130		JUL 18,78 1100	
TOTAL CELLS/ML	500		3900		1000		3900	
DIVERSITY: DIVISION	0.8		1.6		1.3		1.9	
.CLASS	0.8		1.6		1.3		1.9	
..ORDER	1.3		2.4		1.3		2.3	
...FAMILY	1.3		2.4		1.5		2.6	
....GENUS	1.3		2.7		1.8		3.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	14	3	820#	21	57	5	110	3
....CHLORELLA	--	-	--	-	14	1	--	-
....DICTYOSPHAERIUM	--	-	82	2	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	22	1
....OOCYSTIS	--	-	20	1	43	4	--	-
....SELENASTRUM	--	-	120	3	14	1	--	-
....TETRAEDRON	--	-	20	1	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	1500#	38
....SCENEDESMUS	--	-	--	-	57	5	88	2
....TETRASTRUM	--	-	--	-	--	-	88	2
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	340#	68	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	14	3	140	4	--	-	44	1
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	--	-	22	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	120#	24	740#	19	--	-	510	13
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	20	1	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....CALONEIS	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	--	-	110	3
...NITZSCHIACEAE								
....NITZSCHIA	14	3	160	4	--	-	270	7
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...CHROMULINACEAE								
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	1100#	29	690#	66	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	590#	15	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	110	3
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	--	-	--	-	--	-	550	14
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	41	1	--	-	130	3
....LEPOCINCLIS	--	-	--	-	--	-	22	1
....PHACUS	--	-	--	-	14	1	--	-
....TRACHELOMONAS	--	-	*	0	140	14	270	7
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	14	1	--	-
..PERIDINIALES								
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	66	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339500 KNIFE RIVER NEAR GOLDEN VALLEY, ND

LOCATION.--Lat 47°09'40", long 102°03'39", in SE¼ sec.34, T.143 N., R.90 W., Mercer County, Hydrologic Unit 10130201, on left bank 6 ft (2 m) downstream from highway bridge, 4.5 mi (7.2 km) downstream from Elm Creek, and 9 mi (14 km) south of Golden Valley.

DRAINAGE AREA.--1,230 mi² (3,190 km²), approximately.

PERIOD OF RECORD.--May 1903 to November 1906, April 1907 to November 1915, April 1916 to October 1919, and October 1921 to September 1924 (published as "at Broncho" or "near Broncho"), and April 1943 to current year. Monthly discharge only for some periods published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1006: Drainage area. WSP 1279: 1904, 1914-19(M), 1922-24(M), 1944.

GAGE.--Water-stage recorder. Datum of gage is 1,847.13 ft (563.005 m) National Geodetic Vertical Datum of 1929. See WSP 1729 or 1917 for history of changes prior to May 1, 1946.

REMARKS.--Records good except those for the winter period, which are poor.

AVERAGE DISCHARGE.--52 years, 97.6 ft³/s (2.764 m³/s), 70,710 acre-ft/yr (87.2 hm³/yr); median of yearly mean discharges, 83 ft³/s (2.35 m³/s), 60,100 acre-ft/yr (74 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s (317 m³/s) May 9, 1970, gage height, 25.84 ft (7.876 m); maximum gage height, 26.7 ft (8.14 m) Mar. 26, 27, 1943, from floodmark; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 27, 1943 reached a stage of 26.7 ft (8.14 m), from floodmark, 11,500 ft³/s (326 m³/s). The 1943 flood was the highest since 1903 according to information from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,840 ft³/s (222 m³/s) Mar. 27, gage height, 24.84 ft (7.571 m), only peak above base of 1,500 ft³/s (42.5 m³/s); minimum daily, 1.0 ft³/s (0.028 m³/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	6.4	8.0	7.5	1.5	1.0	2050	78	58	95	16	88
2	26	6.8	8.0	7.5	1.5	1.0	1470	71	56	59	16	40
3	44	7.2	8.0	7.0	1.5	1.0	966	65	78	82	14	27
4	53	7.2	7.5	7.0	1.5	1.0	803	63	115	99	13	21
5	54	7.6	7.5	6.5	1.5	1.0	667	65	102	86	12	17
6	53	7.6	7.0	6.5	1.5	1.0	662	76	83	64	12	13
7	42	7.8	7.0	6.0	1.5	1.0	633	81	67	48	11	10
8	40	8.3	6.5	5.5	1.5	1.0	530	92	55	46	9.2	8.0
9	45	8.8	6.5	5.5	1.5	1.5	450	145	46	40	7.6	5.7
10	60	8.0	6.0	5.0	1.5	2.0	380	243	41	35	6.8	6.8
11	70	7.6	6.0	5.0	1.0	4.0	320	351	37	33	6.4	9.2
12	60	7.2	6.5	4.5	1.0	6.0	270	313	37	29	5.7	34
13	50	7.6	7.0	4.0	1.0	8.0	230	323	34	25	5.4	54
14	39	8.0	9.0	4.0	1.0	8.0	210	319	32	88	5.4	214
15	32	9.0	13	4.0	1.0	8.0	200	297	30	61	6.0	660
16	26	8.0	15	3.5	1.0	8.0	190	219	29	44	5.7	811
17	24	7.6	15	3.0	1.0	8.0	180	144	27	42	5.1	306
18	21	7.2	14	3.0	1.0	10	170	107	26	34	5.1	140
19	16	7.0	13	3.0	1.0	21	160	85	24	35	4.5	88
20	14	6.8	13	3.0	1.0	215	150	74	24	29	3.9	62
21	12	6.5	12	2.5	1.0	1540	140	67	22	26	3.3	48
22	9.6	6.0	12	2.5	1.0	2570	130	61	21	25	3.6	41
23	9.2	5.5	11	2.5	1.0	3890	120	55	23	24	4.5	36
24	8.8	5.0	10	2.5	1.0	4740	110	51	23	29	4.8	33
25	8.0	5.0	10	2.0	1.0	4200	102	249	25	34	4.2	32
26	8.0	5.0	9.0	2.0	1.0	4900	105	390	27	35	3.9	30
27	7.6	5.5	9.0	2.0	1.0	7520	105	158	87	28	4.2	27
28	6.4	6.0	9.0	2.0	1.0	6660	102	99	73	20	3.6	24
29	6.0	6.0	8.5	1.5	---	4200	95	89	48	22	3.3	22
30	6.4	7.0	8.5	1.5	---	3420	85	71	114	19	3.3	20
31	6.0	---	8.0	1.5	---	2680	---	60	---	17	44	---
TOTAL	891.0	209.2	290.5	123.5	33.0	46627.5	11785	4561	1464	1353	253.5	2923.7
MEAN	28.7	6.97	9.37	3.98	1.18	1504	393	147	48.8	43.6	8.18	97.5
MAX	70	9.0	15	7.5	1.5	7520	2050	390	115	99	44	811
MIN	6.0	5.0	6.0	1.5	1.0	1.0	85	51	21	17	3.3	5.7
AC-FT	1770	415	576	245	65	92490	23380	9050	2900	2680	503	5800

CAL YR 1977 TOTAL 21382.2 MEAN 58.6 MAX 1140 MIN 2.0 AC-FT 42410
WTR YR 1978 TOTAL 70514.9 MEAN 193 MAX 7520 MIN 1.0 AC-FT 139900

06339550 COYOTE CREEK NEAR ZAP, ND

LOCATION.--Lat 47°11'57", long 101°54'42", in NW¼SW¼SW¼ sec.13, T.143 N., R.89 W., Mercer County, Hydrologic Unit 10130201, on right bank 40 ft (12 m) upstream from bridge on county road 6 mi (10 km) south of Zap, and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--65.2 mi² (169 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,809.75 ft (551.612 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for the winter period, which are fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 75 ft³/s (2.12 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	--	*1,880	53.2	a*10.67	3.252	Apr. 4	1000	94	2.66	4.34	1.323

No flow on many days.

a - From floodmark

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.57	1.1	.90	.30	.00	59	6.2	2.1	1.1	.35	.00
2	.90	.59	1.0	.90	.30	.00	38	5.5	2.0	.97	.27	.00
3	.90	.47	1.0	.95	.25	.00	49	5.0	2.1	.79	.21	.00
4	.86	.48	1.0	1.0	.20	.00	83	4.6	1.9	.93	.18	.00
5	.88	.55	.95	1.0	.20	.00	74	4.4	1.7	.86	.20	.00
6	.93	.59	.90	1.2	.20	.00	72	3.9	1.5	.62	.20	.00
7	1.2	.58	.85	1.0	.20	.00	52	4.4	1.4	.47	.16	.00
8	2.2	.53	.80	.90	.25	.00	34	8.4	1.3	.70	.15	.00
9	7.1	.49	.60	.80	.30	.10	27	16	1.1	.70	.10	.00
10	10	.50	.50	.70	.35	.30	26	20	1.0	.54	.07	.00
11	6.2	1.0	.60	.60	.35	.60	25	14	1.3	.54	.08	.00
12	4.3	.89	1.2	.60	.40	1.0	22	12	1.2	2.0	.07	.00
13	3.6	.78	1.5	.60	.35	.90	20	12	1.9	.93	.03	.09
14	3.0	.67	1.6	.60	.20	.70	17	9.0	1.3	.93	.00	.30
15	2.1	1.2	1.7	.50	.10	.50	15	7.2	1.6	.70	.00	.12
16	1.8	.88	1.7	.50	.00	.40	13	6.2	1.4	.47	.00	.18
17	1.4	.92	1.6	.50	.00	.40	15	5.0	1.3	.47	.00	.15
18	1.2	.83	1.5	.40	.00	.40	16	4.2	1.2	.31	.00	.17
19	1.1	.76	1.0	.45	.10	.40	15	3.7	1.3	1.2	.00	.17
20	.90	.70	1.0	.55	.20	1.0	13	3.5	1.2	1.1	.00	.14
21	.79	.65	1.0	.60	.30	15	12	3.2	.93	1.2	.00	.15
22	.70	.65	1.0	.65	.25	300	10	3.4	.80	.99	.00	.17
23	.69	.60	.95	.60	.20	900	10	3.2	.80	1.1	.00	.13
24	.65	.60	.95	.60	.15	500	11	2.9	.86	.98	.00	.13
25	.64	.60	.95	.50	.10	400	10	2.6	.86	.74	.00	.14
26	1.1	.70	.90	.45	.00	1000	9.4	2.3	.80	.54	.00	.13
27	.71	.80	.90	.40	.00	1500	8.7	2.1	.62	.36	.00	.11
28	.56	.95	.90	.40	.00	600	7.8	2.1	.62	.25	.00	.12
29	.62	1.0	.90	.35	---	190	7.5	1.8	.86	.23	.00	.11
30	.63	1.2	.90	.35	---	125	7.2	1.8	.93	.29	.00	.11
31	.65	---	.90	.30	---	90	---	1.9	---	.27	.00	---
TOTAL	59.31	21.73	32.35	19.85	5.25	5626.70	778.6	182.5	37.88	23.28	2.07	2.62
MEAN	1.91	.72	1.04	.64	.19	182	26.0	5.89	1.26	.75	.067	.087
MAX	10	1.2	1.7	1.2	.40	1500	83	20	2.1	2.0	.35	.30
MIN	.56	.47	.50	.30	.00	.00	7.2	1.8	.62	.23	.00	.00
AC-FT	118	43	64	39	10	11160	1540	362	75	46	4.1	5.2

WTR YR 1978 TOTAL 6792.14 MEAN 18.6 MAX 1500 MIN .00 AC-FT 13470

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
19...	1500	1.1	1390	8.0	22.5	10.5	11.4	109	200	1100	240
NOV											
11...	1045	1.1	1540	8.4	2.0	2.0	12.8	98	100	360	300
DEC											
13...	1330	1.5	2000	8.0	-2.0	.5	11.6	86	25	160	340
JAN											
05...	1215	.98	2160	7.9	-7.0	.0	--	--	K89	K120	380
MAR											
29...	1020	204	375	8.2	11.0	2.0	12.1	94	K42	24000	100
APR											
07...	0900	55	--	--	6.0	.0	--	--	--	--	--
20...	1230	13	1490	8.4	10.5	9.0	12.1	112	<1	K85	370
MAY											
17...	1255	5.3	1960	8.4	27.0	22.0	9.0	110	15	K16	480
JUN											
14...	1330	1.3	2030	8.4	20.0	26.0	8.8	114	210	92	460
30...	1100	.97	--	--	23.0	24.5	--	--	--	--	--
JUL											
18...	1430	.42	2000	8.4	29.5	29.0	9.0	123	800	210	370
AUG											
08...	0900	.15	2100	8.3	18.5	22.0	6.6	80	1100	190	350
SEP											
19...	0930	.18	2010	8.3	8.5	9.0	11.2	104	570	380	300

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
19...	0	47	29	250	69	7.1	8.9	387	0	317	6.2
NOV											
11...	0	61	37	240	62	6.0	9.6	432	4	362	2.8
DEC											
13...	0	66	43	370	69	8.7	10	613	0	503	9.8
JAN											
05...	0	76	47	370	67	8.2	9.3	610	0	500	12
MAR											
29...	0	22	11	37	43	1.6	6.1	146	0	120	1.5
APR											
07...	--	--	--	--	--	--	--	--	--	--	--
20...	90	77	44	200	53	4.5	8.7	329	6	280	2.2
MAY											
17...	110	93	60	310	58	6.2	11	443	6	373	2.9
JUN											
14...	7	92	57	340	61	6.9	11	544	4	453	3.5
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	0	67	48	370	68	8.4	10	536	14	463	3.5
AUG											
08...	0	61	49	390	70	9.0	11	590	0	480	4.7
SEP											
19...	0	53	41	370	72	9.3	10	576	0	470	4.6

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 19...	410	5.4	.2	17	950	959	1.30	2.85	.01	.13	.87
NOV 11...	460	7.3	.3	10	1040	1040	1.41	3.09	.00	.04	.51
DEC 13...	580	8.2	.3	11	1390	1390	1.89	5.63	.58	.25	.29
JAN 05...	640	8.1	.3	13	1490	1470	2.00	3.89	.56	.13	.45
MAR 29...	100	2.3	.1	4.8	233	254	.35	140	.40	.48	1.4
APR 07...	--	--	--	--	--	--	--	--	--	--	--
20...	500	5.0	.2	7.6	1040	1010	1.37	35.5	.15	.04	.77
MAY 17...	720	6.5	.2	3.7	1430	1430	1.94	20.5	.03	.04	.72
JUN 14...	660	7.3	.3	4.9	1440	1450	1.97	5.09	.01	.05	.66
30...	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	650	7.8	.3	11	1430	1440	1.96	1.63	.01	.00	.89
AUG 08...	650	8.9	.3	8.8	1470	1470	2.00	.60	.01	.00	.73
SEP 19...	650	10	.4	9.2	1450	1430	1.94	.70	.02	.00	.66

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 19...	1.0	1.0	4.5	.10	.03	--	--	--	--	--	--
NOV 11...	.55	.55	2.4	.06	.02	10	--	1	--	--	0
DEC 13...	.54	1.1	5.0	.04	.03	--	--	--	--	--	--
JAN 05...	.58	1.1	5.0	.06	.10	--	--	--	--	--	--
MAR 29...	1.9	2.3	10	.38	.11	--	--	--	--	--	--
APR 07...	--	--	--	--	--	--	--	--	--	--	--
20...	.81	.96	4.3	.07	.02	0	2	1	--	200	0
MAY 17...	.76	.79	3.5	.07	.03	--	--	--	--	--	--
JUN 14...	.71	.72	3.2	.02	.00	0	2	2	16	200	100
30...	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	.89	.90	4.0	.03	.00	--	--	--	--	--	--
AUG 08...	.73	.74	3.3	.03	.00	20	--	2	--	--	100
SEP 19...	.66	.68	3.0	.02	.01	--	--	--	--	--	--

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT 19...	--	--	--	--	310	--	--	--	--	--
NOV 11...	--	--	0	--	300	--	0	--	--	0
DEC 13...	--	--	--	--	370	--	--	--	--	--
JAN 05...	--	--	--	--	380	--	--	--	--	--
MAR 29...	--	--	--	--	90	--	--	--	--	--
APR 07...	--	--	--	--	--	--	--	--	--	--
20...	--	0	0	--	230	3	3	--	0	0
MAY 17...	--	--	--	--	340	--	--	--	--	--
JUN 14...	120	0	0	1	390	1	1	0	0	0
30...	--	--	--	--	--	--	--	--	--	--
JUL 18...	--	--	--	--	420	--	--	--	--	--
AUG 08...	--	--	0	--	430	--	0	--	--	0
SEP 19...	--	--	--	--	380	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	--	--	0	--	.9	--	10	--	--	--	--	--
APR 20...	--	0	0	--	1.0	20	10	--	<12	.6	13	1.5
MAY 17...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	11	0	1	0	.0	20	10	13	--	--	--	--
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	0	--	.0	--	10	--	--	--	--	--
SEP 19...	--	--	--	--	--	--	--	--	<14	.4	8.2	1.0

DATE	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 11...	40	--	60	--	--	.0	--	--	--	1	--	2
APR 20...	40	150	100	--	.0	.0	--	2	--	1	7	3
MAY 17...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	60	140	30	390	.3	.0	.01	4	5	5	6	4
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	60	--	60	--	--	.0	--	--	--	5	--	3
SEP 19...	--	--	--	--	--	--	--	--	--	--	--	--

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)
OCT												
19...	--	--	--	--	--	--	--	60	--	--	--	--
NOV												
11...	--	--	0	--	--	2	--	40	--	2	--	--
DEC												
13...	--	--	--	--	--	--	--	60	--	--	--	--
JAN												
05...	--	--	--	--	--	--	--	40	--	--	--	--
MAR												
29...	--	--	--	--	--	--	--	120	--	--	--	--
APR												
20...	--	1	3	--	3	2	--	30	--	--	--	40
MAY												
17...	--	--	--	--	--	--	--	10	--	--	--	--
JUN												
14...	1	2	0	7	7	3	75	30	4	2	12	60
JUL												
18...	--	--	--	--	--	--	--	30	--	--	--	--
AUG												
08...	--	--	1	--	--	4	--	30	--	2	--	--
SEP												
19...	--	--	--	--	--	--	--	50	--	--	--	--

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT								
19...	12	2.3	78	.23	--	--	--	--
NOV								
11...	12	1.2	28	.08	--	--	--	--
DEC								
13...	8.7	.6	42	.17	--	--	--	--
JAN								
05...	11	.7	40	.11	--	--	--	--
MAR								
29...	8.8	4.0	638	351	--	--	--	--
APR								
07...	--	--	105	16	1	2	5	20
20...	9.7	1.4	25	.08	--	--	--	--
MAY								
17...	13	.9	42	.60	--	--	--	--
JUN								
14...	12	.6	63	.22	12	20	30	35
30...	--	--	60	.16	--	--	--	--
JUL								
18...	11	--	54	.06	--	--	--	--
AUG								
08...	12	.5	35	.01	--	--	--	--
SEP								
19...	.8	.4	23	.01	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
APR							
07...	28	38	77	82	93	100	--
20...	--	--	--	--	--	--	--
MAY							
17...	--	--	--	--	--	--	--
JUN							
14...	40	44	49	55	61	82	100
30...	--	--	--	--	--	--	--
JUL							
18...	--	--	--	--	--	--	--
AUG							
08...	--	--	--	--	--	--	--
SEP							
19...	--	--	--	--	--	--	--

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 19,77	NOV 11,77	DEC 13,77	JAN 5,78	MAR 29,78	APR 20,78
TIME	1500	1045	1330	1215	1020	1230
TOTAL CELLS/ML	33000	2000	390	180	3500	13000
DIVERSITY: DIVISION	1.7	1.5	1.5	1.4	0.2	1.1
.CLASS	1.7	1.5	1.5	1.4	0.2	1.1
..ORDER	2.5	1.5	1.6	1.9	0.9	1.1
...FAMILY	2.7	2.1	2.3	2.5	0.0	1.1
....GENUS	3.1	2.7	2.6	2.5	0.0	1.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	220	1	--	-	--	-	20	11	20	1	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	220	1	730#	37	55	14	39#	22	--	-	--	-
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	56	3	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	440	1	--	-	7	2	--	-	20	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	650	2	170	9	--	-	--	-	--	-	--	-
....SCENEDESMUS	3500	11	240	12	83#	21	*	0	--	-	--	-
....TETRASTRUM	1700	5	--	-	21	5	--	-	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	2400	7	--	-	--	-	--	-	--	-	6900#	51
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	11000#	33	--	-	7	2	39#	22	60	2	6200#	47
....SKELETONEMA	650	2	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	*	0	--	-	--	-
....COCCONEIS	--	-	14	1	--	-	20	11	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	14	1	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	870	3	43	2	21	5	39#	22	--	-	--	-
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	1300	4	--	-	21	5	--	-	20	1	--	-
...SURIRELLACEAE												
....SURIRELLA	220	1	--	-	28	7	*	0	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	--	-	--	-	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CENTRITRACTACEAE												
....CENTRITRACTUS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

(CONTINUED)

DATE	OCT 19,77		NOV 11,77		DEC 13,77		JAN 5,78		MAR 29,78		APR 20,78	
TIME	1500		1045		1330		1215		1020		1230	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	4800	15	140	7	--	-	--	-	640#	10	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	3700	11	--	-	140#	38	--	-	--	-	--	-
....SPIRULINA	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES	--	-	--	-	--	-	--	-	2700#	78	--	-
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	650	2	58	3	--	-	--	-	--	-	--	-
....PHACUS	220	1	14	1	--	-	--	-	--	-	--	-
....TRACHELOMONAS	440	1	450#	22	--	-	20	11	--	-	310	2
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	43	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAY 17,78	JUN 14,78	JUL 18,78	AUG 8,78	SEP 19,78
TIME	1255	1330	1430	0900	0930
TOTAL CELLS/ML	1800	2800	11000	4300	1700
DIVERSITY: DIVISION	1.7	1.7	1.5	1.4	1.5
.CLASS	1.7	1.7	1.5	1.4	1.7
..ORDER	2.3	1.7	1.6	1.8	2.0
...FAMILY	2.6	2.1	2.2	2.3	2.8
....GENUS	2.8	3.0	3.4	3.0	3.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	160	9	110	4	270	3	100	2	66	4
....CHLORELLA	--	-	170	6	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	14	1	--	-	--	-	--	-
....DICTYOSPHAERIUM	54	3	--	-	1200	11	580	14	180	10
....KIRCHNERIELLA	--	-	43	2	68	1	42	1	--	-
....OOCYSTIS	--	-	130	5	580	5	83	2	--	-
....SELENASTRUM	54	3	72	3	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	170	2	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	22	1
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	2600#	24	1300#	30	88	5
....SCENEDESMUS	220	12	400	14	780	7	460	11	260#	15
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	140	1	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	14	1	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	250	6	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	68	4	--	-	68	1	62	1	130	8
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	14	1	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	*	0	--	-
....SYNEDRA	14	1	--	-	--	-	--	-	22	1
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	29	1	*	0	--	-	--	-
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	200	2	--	-	180	10
....NAVICULA	--	-	57	2	170	2	--	-	110	6
....PINNULARIA	--	-	--	-	--	-	--	-	22	1
...NITZSCHIACEAE										
....NITZSCHIA	68	4	--	-	200	2	120	3	370#	22
...SURIRELLACEAE										
....SURIRELLA	*	0	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	66	4
.XANTHOPHYCEAE										
..HETEROCOCCALES										
...CENTRITRACTACEAE										
....CENTRITRACTUS	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339550 COYOTE CREEK NEAR ZAP, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAY 17,78		JUN 14,78		JUL 18,78		AUG 8,78		SEP 19,78	
TIME	1255		1330		1430		0900		0930	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML.	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....AGMENELLUM	--	-	830#	30	1200	11	--	-	--	-
....ANACYSTIS	600#	34	400	14	1300	12	370	9	180	10
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	270#	15	--	-	--	-	--	-	--	-
....SPIRULINA	--	-	--	-	--	-	*	0	--	-
..HORMOGONALES	--	-	--	-	--	-	--	-	--	-
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....GOMPHOSPHAERIA	--	-	--	-	1400	13	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	29	1	--	-	--	-	44	3
....PHACUS	--	-	--	-	--	-	*	0	--	-
....TRACHELOMONAS	260	15	470#	17	480	4	810#	19	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	14	1	--	-	--	-	--	-
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)
MAY			
17...	27	10.8	.000
JUL			
18...	34	52.2	12.2

06339560 BRUSH CREEK NEAR BEULAH, ND

LOCATION.--Lat 47°10'43", long 101°47'05", in NW¼SW¼NW¼ sec.25, T.143 N., R.88 W., Mercer County, Hydrologic Unit 10130201, on right bank 60 ft (18 m) upstream from bridge on State Highway 49, and 6 mi (10 km) south of Beulah.

DRAINAGE AREA.--22 mi² (57 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,948 ft (593.8 m) from State Highway Department levels.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 200 ft³/s (5.66 m³/s) Mar. 21, 1978, gage height 9.26 ft (2.822 m), backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 200 ft³/s (5.66 m³/s) Mar. 21, gage height, 9.26 ft (2.822 m), backwater from ice, only peak above base of 50 ft³/s (1.42 m³/s); no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.16	.33	.03	.00	.00	11	.85	.24	.24	.04	.03
2	.10	.16	.30	.03	.00	.00	6.5	.79	.22	.20	.04	.02
3	.10	.14	.28	.03	.00	.00	8.0	.70	.20	.10	.03	.02
4	.09	.14	.26	.02	.00	.00	9.0	.62	.18	.10	.03	.02
5	.09	.14	.25	.02	.00	.00	11	.62	.16	.07	.03	.01
6	.07	.16	.20	.02	.00	.00	8.8	.62	.16	.06	.02	.01
7	.26	.18	.17	.01	.00	.00	5.9	.92	.14	.05	.02	.01
8	.62	.18	.12	.01	.00	.10	4.3	3.1	.14	.05	.02	.01
9	.70	.16	.11	.01	.00	.35	3.7	3.8	.12	.05	.03	.01
10	.70	.14	.10	.00	.00	.60	3.8	3.0	.08	.04	.02	.05
11	.66	.14	.08	.00	.00	.70	4.7	2.3	.24	.03	.03	.07
12	.46	.14	.08	.00	.00	.75	4.7	2.2	.74	.79	.03	.50
13	.32	.14	.08	.00	.00	.85	4.1	2.2	.50	.50	.03	.40
14	.22	.18	.08	.00	.00	.80	3.7	1.7	.29	.24	.03	.35
15	.22	.20	.08	.00	.00	.70	3.1	1.5	.32	.10	.03	.30
16	.20	.20	.08	.00	.00	.60	2.9	.79	.35	.06	.02	.29
17	.14	.18	.07	.00	.00	.60	3.1	.70	.29	.04	.03	.29
18	.14	.16	.07	.00	.00	.60	3.4	.58	.24	.04	.03	.29
19	.14	.18	.07	.00	.00	.65	2.8	.54	.20	.20	.03	.29
20	.14	.18	.07	.00	.00	.60	2.0	.58	.18	.18	.03	.29
21	.14	.18	.06	.00	.00	137	1.7	.54	.16	.18	.04	.29
22	.14	.18	.06	.00	.00	120	1.6	.38	.12	.16	.04	.29
23	.14	.18	.06	.00	.00	100	2.2	.29	.10	.12	.05	.25
24	.14	.18	.06	.00	.00	56	2.0	.26	.10	.08	.04	.22
25	.16	.18	.06	.00	.00	50	1.8	.24	.10	.05	.04	.19
26	.16	.18	.06	.00	.00	50	1.5	.20	.12	.04	.04	.16
27	.16	.20	.05	.00	.00	40	1.3	.16	.08	.04	.04	.18
28	.14	.33	.05	.00	.00	37	1.1	.16	.05	.03	.04	.14
29	.16	.35	.04	.00	---	38	1.1	.12	.22	.03	.04	.14
30	.18	.35	.04	.00	---	39	.92	.14	.35	.03	.04	.18
31	.16	---	.03	.00	---	26	---	.20	---	.03	.04	---
TOTAL	7.19	5.57	3.45	.18	.00	700.90	121.72	30.80	6.39	3.93	1.02	5.30
MEAN	.23	.19	.11	.006	.000	22.6	4.06	.99	.21	.13	.033	.18
MAX	.70	.35	.33	.03	.00	137	11	3.8	.74	.79	.05	.50
MIN	.07	.14	.03	.00	.00	.00	.92	.12	.05	.03	.02	.01
AC-FT	14	11	6.8	.4	.00	1390	241	61	13	7.8	2.0	11

CAL YR 1977 TOTAL 183.12 MEAN .50 MAX 25 MIN .00 AC-FT 363
WTR YR 1978 TOTAL 886.45 MEAN 2.43 MAX 137 MIN .00 AC-FT 1760

KNIFE RIVER BASIN

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
21...	0945	.14	1775	7.9	--	8.0	7.8	70	1.3	420	0
NOV											
28...	1330	.35	2040	7.8	--	.0	10.5	77	--	570	15
DEC											
23...	1200	.06	1920	7.9	-9.5	.0	9.5	70	1.1	580	27
MAR											
13...	1250	.85	1750	--	--	.5	--	--	--	--	--
21...	1515	137	--	--	--	1.0	--	--	--	--	--
24...	1000	56	250	--	--	.5	--	--	--	--	--
28...	1445	37	260	--	--	1.5	--	--	--	--	--
30...	1515	39	--	--	--	6.0	--	--	--	--	--
APR											
10...	1250	2.9	920	7.9	10.0	9.5	9.2	99	1.2	280	27
27...	0910	1.3	1490	8.2	--	11.0	11.1	107	.7	460	68
MAY											
23...	0830	.28	1770	7.9	--	17.5	6.1	68	1.4	540	26
JUN											
28...	0850	.08	1760	7.9	--	19.5	5.8	68	1.0	430	0
JUL											
21...	1200	.16	1660	8.0	--	19.5	8.3	97	--	380	0
AUG											
23...	1200	.06	1800	7.9	--	17.5	7.6	85	.6	420	0
SEP											
26...	0900	.17	1860	8.0	--	12.0	7.5	--	.6	470	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT											
21...	71	59	280	59	5.9	9.1	590	0	480	12	500
NOV											
28...	96	81	310	53	5.6	11	680	0	560	17	630
DEC											
23...	99	80	300	53	5.4	10	670	0	550	13	600
MAR											
13...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
10...	56	34	110	45	2.9	8.3	310	0	250	6.2	260
27...	91	57	200	48	4.1	8.8	480	0	390	4.8	450
MAY											
23...	110	65	270	52	5.0	8.3	630	0	520	13	550
JUN											
28...	78	57	290	59	6.1	7.6	640	0	530	13	480
JUL											
21...	64	53	270	60	6.0	8.0	650	0	530	10	420
AUG											
23...	77	55	290	59	6.2	11	690	0	570	14	440
SEP											
26...	84	62	280	56	5.7	11	640	0	530	10	540

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
21...	7.5	.2	8.9	1240	--	1230	1.69	.47	--	.16
NOV										
28...	8.4	.3	14	1500	--	1490	2.04	1.34	--	.10
DEC										
23...	8.3	.2	17	1470	--	1450	2.00	.24	--	.13
APR										
10...	3.5	.2	10	628	--	636	.85	5.02	--	.21
27...	5.4	.2	5.6	1050	--	1050	1.43	3.80	--	.01
MAY										
23...	5.6	.2	8.3	1310	--	1330	1.78	.99	--	.05
JUN										
28...	3.8	.3	12	1220	--	1250	1.66	.26	--	.05
JUL										
21...	5.3	.3	8.2	1140	--	1150	1.55	.49	--	.04
AUG										
23...	9.8	.3	13	1220	--	1240	1.66	.20	--	.08
SEP										
26...	7.0	.3	13	1300	1420	1320	1.77	.60	<1	.01

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT							
21...	.45	.00	.50	.61	2.7	.04	.01
NOV							
28...	.75	.15	.60	.85	3.8	.04	.04
DEC							
23...	.72	.08	.64	.85	3.8	.04	.02
APR							
10...	.82	.09	.73	1.0	4.6	.07	.05
27...	.72	.01	.71	.73	3.2	.03	.01
MAY							
23...	.69	.00	.74	.74	3.3	.04	.03
JUN							
28...	.89	.58	.31	.94	4.2	.04	.04
JUL							
21...	.57	.00	1.2	.61	2.7	.03	.03
AUG							
23...	.52	.08	.44	.60	2.7	.05	.03
SEP							
26...	.51	.15	.36	.52	2.3	.04	.02

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT							
21...	--	--	--	--	--	--	--
NOV							
28...	--	--	--	--	--	--	--
DEC							
23...	10	1	100	350	0	0	0
APR							
10...	0	3	100	170	1	0	1
27...	--	--	--	--	--	--	--
MAY							
23...	--	--	--	--	--	--	--
JUN							
28...	10	2	200	390	0	0	2
JUL							
21...	--	--	--	--	--	--	--
AUG							
23...	--	--	--	--	--	--	--
SEP							
26...	0	1	100	390	0	10	0

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)
OCT 21...	--	--	--	--	--	--	--	--	--	--
NOV 28...	--	--	--	--	--	--	--	--	--	--
DEC 23...	90	0	90	50	.0	1	0	320	10	--
APR 10...	90	2	30	90	.0	2	0	970	10	--
27...	--	--	--	--	--	--	--	--	--	--
MAY 23...	--	--	--	--	--	--	--	--	--	--
JUN 28...	80	4	80	70	.0	0	0	1700	10	--
JUL 21...	--	--	--	--	--	--	--	--	--	--
AUG 23...	--	--	--	--	--	--	--	--	--	--
SEP 26...	110	1	100	80	.0	0	0	2000	0	<13

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
OCT 21...	--	--	--	--	--	--	--	9.4	.3
NOV 28...	--	--	--	--	--	--	--	11	.2
DEC 23...	--	--	--	--	--	--	--	8.1	--
APR 10...	--	--	--	--	--	--	--	7.2	.4
27...	--	--	--	--	--	--	--	10	.6
MAY 23...	--	--	--	--	--	--	--	11	.5
JUN 28...	--	--	--	--	--	--	--	8.2	.3
JUL 21...	--	--	--	--	--	--	--	9.1	.1
AUG 23...	--	--	--	--	--	--	--	7.7	.2
SEP 26...	<.4	10	<.4	9.5	<.4	.06	.5	--	--

06339560 BRUSH CREEK NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)
OCT							
21...	6	.00	--	--	--	--	--
NOV							
28...	4	.00	--	--	--	--	--
DEC							
23...	9	.00	--	--	--	--	--
MAR							
21...	105	59	55	76	100	--	--
30...	84	8.8	--	--	--	--	--
APR							
10...	8	.06	--	--	--	20	29
27...	3	.01	--	--	--	--	--
MAY							
23...	5	.00	--	--	--	--	--
JUN							
28...	3	.00	--	--	--	--	--
JUL							
21...	3	.00	--	--	--	--	--
AUG							
23...	3	.00	--	--	--	--	--
SEP							
26...	4	.00	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT						
21...	--	--	--	--	--	--
NOV						
28...	--	--	--	--	--	--
DEC						
23...	--	--	--	--	--	--
MAR						
21...	--	--	--	--	--	--
30...	--	--	--	--	--	--
APR						
10...	56	73	77	83	92	100
27...	--	--	--	--	--	--
MAY						
23...	--	--	--	--	--	--
JUN						
28...	--	--	--	--	--	--
JUL						
21...	--	--	--	--	--	--
AUG						
23...	--	--	--	--	--	--
SEP						
26...	--	--	--	--	--	--

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND

LOCATION.--Lat 47°20'34", long 102°37'03", in NW¼NW¼NE¼ sec.35, T.145 N., R.94 W., Dunn County, Hydrologic Unit 10130201, on right bank 100 ft (30 m) upstream from bridge on township road, 0.5 mi (0.8 km) south of Dunn Center, and 1.8 mi (2.9 km) downstream from Lake Ilo.

DRAINAGE AREA.--116 mi^2 (300 km^2), of which about 12 mi^2 (31 km^3) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,150 ft (655 m), from topographic map.

REMARKS.--Records good. Some regulation by Lake Ilo.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,150 ft^3/s (32.6 m^3/s) Mar. 27, gage height, 7.88 ft (2.402 m); minimum daily, 0.46 ft^3/s (0.013 m^3/s) Oct. 6, Feb. 28, and Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.56	.68	.70	.78	.48	197	8.0	11	2.9	1.5	1.8
2	.90	.56	.63	.70	.71	.47	134	7.2	8.0	2.4	1.4	1.8
3	.80	.56	.62	.70	.75	.49	103	6.6	6.4	2.0	1.4	1.9
4	.70	.60	.60	.70	.75	.50	92	9.0	5.8	3.1	1.2	1.9
5	.50	.72	.60	.70	.71	.50	84	7.0	5.6	3.7	1.3	2.0
6	.47	1.0	.60	.70	.71	.49	74	7.2	4.2	3.6	1.3	1.9
7	.77	1.1	.60	.70	.68	.50	61	12	2.9	3.3	1.3	1.9
8	1.0	1.0	.70	.70	.71	.50	50	38	2.9	2.6	1.1	1.9
9	.66	1.0	.70	.70	.71	.51	44	66	2.2	2.2	1.1	1.7
10	.58	.96	.65	.70	.68	.59	34	57	7.3	1.8	1.1	1.7
11	.56	.98	.80	.80	.68	.71	29	41	4.1	1.6	1.2	2.0
12	.53	.97	1.8	.80	.65	.68	34	59	3.3	7.0	1.1	2.6
13	.50	1.0	2.3	.80	.64	.59	25	75	1.3	2.5	1.1	1.9
14	.50	1.1	1.5	.80	.62	.57	21	57	.89	1.3	1.1	2.0
15	.50	1.2	.60	.80	.62	.56	19	41	2.1	1.3	1.1	1.9
16	.52	1.1	.60	.80	.60	.54	20	28	3.5	1.3	1.1	2.2
17	.52	.89	.60	.80	.59	.53	20	20	3.4	1.5	1.2	2.1
18	.51	.65	.60	.85	.59	.60	22	15	2.0	2.2	1.3	1.5
19	.60	.62	.60	.89	.59	1.0	19	12	3.5	2.5	1.2	5.4
20	1.5	.60	.60	.89	.56	3.0	16	10	3.2	1.5	1.0	3.3
21	1.2	.60	.60	.81	.52	5.0	13	7.4	1.6	1.4	1.0	2.4
22	.58	.60	.60	.89	.50	20	13	6.6	1.6	1.7	1.1	1.4
23	.53	.63	.60	.85	.50	80	15	5.9	1.5	1.9	1.2	1.4
24	.53	.63	.60	.92	.50	600	15	5.0	1.4	1.7	1.7	1.6
25	.57	.62	.60	.90	.50	500	14	5.3	1.8	2.2	2.0	1.5
26	.56	.64	.70	.92	.50	700	12	7.6	1.9	1.8	1.9	1.6
27	.55	.66	.70	.85	.49	900	8.9	3.7	2.4	1.5	2.4	1.6
28	.56	.64	.70	.85	.47	769	8.9	3.2	2.4	1.7	1.8	1.7
29	.57	.65	.70	.81	---	444	8.5	3.4	5.6	1.9	1.7	2.1
30	.58	.68	.70	.81	---	338	8.1	4.4	3.0	1.2	1.7	1.5
31	.57	---	.70	.78	---	281	---	7.9	---	1.4	1.8	---
TOTAL	20.42	23.52	23.58	24.62	17.31	4650.81	1214.4	636.4	106.79	68.7	42.4	60.2
MEAN	.66	.78	.76	.79	.62	150	40.5	20.5	3.56	2.22	1.37	2.01
MAX	1.5	1.2	2.3	.92	.78	900	197	75	11	7.0	2.4	5.4
MIN	.47	.56	.60	.70	.47	.47	8.1	3.2	.89	1.2	1.0	1.4
AC-FT	41	47	47	49	34	9220	2410	1260	212	136	84	119

WTR YR 1978 TOTAL 6889.15 MEAN 18.9 MAX 900 MIN .47 AC-FT 13660

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
13...	1500	.52	2520	8.0	17.5	10.0	10.5	99	K9	1400	560
NOV											
16...	1015	1.0	1850	8.0	1.5	4.0	11.6	96	20	110	400
DEC											
13...	1345	2.3	4400	7.1	3.5	.5	4.9	37	K6000	K2800	880
JAN											
18...	1100	.81	2270	8.3	-23.0	.5	2.5	19	520	840	450
FEB											
22...	0915	.49	2050	7.7	1.0	1.0	3.0	23	K1	44	410
MAR											
09...	1115	.51	2000	7.5	12.0	1.0	3.8	29	20	400	390
28...	1510	743	--	--	--	5.0	--	--	--	--	--
APR											
06...	1000	78	--	--	3.0	4.0	--	--	--	--	--
07...	0900	62	274	7.3	-.5	2.5	11.7	93	K17	--	50
MAY											
03...	1300	5.5	770	8.4	20.0	14.5	13.8	145	K3	K75	130
JUN											
23...	1030	1.7	1125	8.1	19.0	13.0	6.8	80	96	350	200
28...	1345	2.3	--	--	19.5	21.0	--	--	--	--	--
JUL											
27...	1130	1.5	1380	8.1	25.5	23.0	7.1	88	87	200	250
AUG											
07...	1230	1.4	1500	8.5	20.0	23.0	9.5	119	K42	260	250
SEP											
19...	0805	2.6	1280	8.2	6.0	10.5	8.3	81	410	380	240

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
13...	150	99	76	390	60	7.2	8.2	498	0	408	8.0
NOV											
16...	0	76	50	300	62	6.6	7.3	498	0	408	8.0
DEC											
13...	480	170	110	630	61	9.3	9.2	494	0	400	63
JAN											
18...	0	86	57	390	65	8.0	8.4	696	0	570	5.6
FEB											
22...	0	75	54	360	65	7.7	7.9	583	0	480	19
MAR											
09...	0	75	49	340	65	7.5	7.4	564	0	460	29
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
07...	0	11	5.4	35	58	2.2	4.4	76	0	62	6.1
MAY											
03...	0	24	17	120	65	4.6	6.3	222	2	190	1.4
JUN											
23...	0	41	24	160	62	4.9	7.8	356	0	290	4.5
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	0	49	32	250	67	6.8	8.8	437	0	360	5.6
AUG											
07...	0	48	32	260	68	7.1	8.9	412	14	360	2.2
SEP											
19...	0	50	27	220	66	6.2	8.5	414	0	340	4.2

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 13...	950	7.5	.6	14	1800	1790	2.43	2.5	.01	.07	.86
NOV 16...	560	6.2	.6	15	1300	1260	1.71	3.5	.09	.07	.90
DEC 13...	1500	32	.8	23	2430	2720	3.70	16.9	.04	1.1	1.5
JAN 18...	710	7.5	.6	20	1630	1620	2.20	3.5	.13	.58	.52
FEB 22...	650	6.2	.6	18	1450	1460	1.99	1.9	.25	.40	.17
MAR 09...	620	6.1	.4	16	1440	1390	1.89	1.9	.20	.28	.46
28...	--	--	--	--	--	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
07...	57	1.8	.1	3.9	164	156	.21	26.1	.30	.26	.67
MAY 03...	210	4.2	.2	.4	492	494	.67	7.3	.00	.03	1.2
JUN 23...	260	6.0	.4	7.6	764	683	.93	3.1	.23	.34	1.4
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	390	8.6	.5	9.1	987	964	1.31	3.9	.61	.01	1.8
AUG 07...	400	7.1	.4	7.0	981	981	1.33	3.7	.26	.03	1.6
SEP 19...	340	6.6	.4	9.1	884	866	1.18	6.0	.72	.26	1.2

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 13...	.93	.94	4.2	.09	.02	--	--	--	--	--	--
NOV 16...	.97	1.1	4.7	.05	.03	20	--	1	--	--	0
DEC 13...	2.6	2.6	12	.20	.06	--	--	--	--	--	--
JAN 18...	1.1	1.2	5.4	.11	.05	--	--	--	--	--	--
FEB 22...	.57	.82	3.6	.09	.05	--	--	--	--	--	--
MAR 09...	.74	.94	4.2	.10	.04	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
07...	.93	1.2	5.4	.17	.10	30	2	3	--	100	100
MAY 03...	1.2	1.2	5.3	.10	.03	--	--	--	--	--	--
JUN 23...	1.7	1.9	8.5	.11	.02	30	3	2	8	200	200
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	1.8	2.4	11	.21	.07	--	--	--	--	--	--
AUG 07...	1.6	1.9	8.2	.22	.03	20	--	3	--	--	300
SEP 19...	1.5	2.2	9.8	.17	.09	--	--	--	--	--	--

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT 13...	--	--	--	--	910	--	--	--	--	--
NOV 16...	--	--	0	--	690	--	0	--	--	4
DEC 13...	--	--	--	--	1300	--	--	--	--	--
JAN 18...	--	--	--	--	640	--	--	--	--	--
FEB 22...	--	--	--	--	550	--	--	--	--	--
MAR 09...	--	--	--	--	550	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--
07...	--	0	0	--	80	1	1	--	0	0
MAY 03...	--	--	--	--	220	--	--	--	--	--
JUN 23...	70	0	0	0	330	0	0	0	15	5
28...	--	--	--	--	--	--	--	--	--	--
JUL 27...	--	--	--	--	460	--	--	--	--	--
AUG 07...	--	--	0	--	460	--	0	--	--	0
SEP 19...	--	--	--	--	380	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)
OCT 13...	--	--	--	--	--	--	--	80	--	--	--	--
NOV 16...	--	--	0	--	--	0	--	200	--	2	--	--
DEC 13...	--	--	--	--	--	--	--	460	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	480	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	520	--	--	--	--
MAR 09...	--	--	--	--	--	--	--	310	--	--	--	--
APR 07...	--	3	1	--	4	4	--	110	7	2	--	8
MAY 03...	--	--	--	--	--	--	--	40	--	--	--	--
JUN 23...	0	0	0	14	6	10	10	40	0	0	0	30
JUL 27...	--	--	--	--	--	--	--	70	--	--	--	--
AUG 07...	--	--	2	--	--	3	--	130	--	0	--	--
SEP 19...	--	--	--	--	--	--	--	160	--	--	--	--

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
16...	60	--	180	--	--	.0	--	--	--	2	--	3
DEC												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
09...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	5	60	40	--	.0	.1	--	2	--	2	8	1
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
23...	30	340	250	440	.1	.0	.05	6	5	3	4	1
JUL												
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	40	--	60	--	--	.0	--	--	--	3	--	2
SEP												
19...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
16...	--	--	0	--	1.2	--	30	--	--	--	--	--
DEC												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
09...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	--	0	0	--	1.0	10	0	--	--	--	--	--
MAY												
03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
23...	20	0	0	6	1.0	20	10	25	--	--	--	--
JUL												
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	--	--	0	--	.0	--	10	--	--	--	--	--
SEP												
19...	--	--	--	--	--	--	--	--	<8.7	.7	13	1.4

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
13...	22	1.2	72	.10	--	--	--
NOV							
16...	24	1.8	8	.02	--	--	--
DEC							
13...	29	1.4	15	.09	--	--	--
JAN							
18...	16	.8	29	.06	--	--	--
FEB							
22...	13	.7	14	.02	--	--	--
MAR							
09...	13	.9	20	.03	--	--	--
28...	--	--	120	241	--	--	--
APR							
06...	--	--	38	8.0	--	--	--
07...	8.0	--	--	--	--	--	--
MAY							
03...	10	2.7	41	.61	6	14	29
JUN							
23...	14	1.3	41	.19	10	22	48
28...	--	--	23	.14	--	--	--
JUL							
27...	--	2.7	55	.22	--	--	--
AUG							
07...	18	2.4	57	.22	--	--	--
SEP							
19...	16	1.0	21	.15	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT							
13...	--	--	--	--	--	--	--
NOV							
16...	--	--	--	--	--	--	--
DEC							
13...	--	--	--	--	--	--	--
JAN							
18...	--	--	--	--	--	--	--
FEB							
22...	--	--	--	--	--	--	--
MAR							
09...	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--
APR							
06...	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--
MAY							
03...	44	52	62	75	84	94	100
JUN							
23...	57	65	74	86	95	97	100
28...	--	--	--	--	--	--	--
JUL							
27...	--	--	--	--	--	--	--
AUG							
07...	--	--	--	--	--	--	--
SEP							
19...	--	--	--	--	--	--	--

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 13,77		NOV 16,77		DEC 13,77		JAN 18,78		FEB 22,78		MAR 9,78	
TIME	1500		1030		1345		1100		0915		1115	
TOTAL CELLS/ML	11000		15000		2900		630		120		810	
DIVERSITY: DIVISION	0.6		1.2		1.2		1.4		0.0		0.7	
.CLASS	0.6		1.2		1.2		1.4		0.0		0.7	
..ORDER	0.8		1.2		1.5		1.4		0.0		0.7	
...FAMILY	1.7		1.9		1.6		2.1		0.0		0.8	
....GENUS	2.4		2.1		1.8		2.1		0.0		1.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	4500#	42	6400#	44	*	0	150#	24	--	-	10	1
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	1200	12	99	1	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	920	9	300	2	--	-	--	-	--	-	--	-
....SCENEDESMUS	2500#	23	4100#	28	210	7	190#	31	120#	100	63	8
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	230	2	99	1	1500#	52	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	380	4	--	-	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	26	1	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
...RHIZOSOLENIACEAE												
....RHIZOSOLENIA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	--	-	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	22	3	--	-	*	0
...NAVICULACEAE												
....NAVICULA.	77	1	99	1	26	1	22	3	*	0	*	0
...NITZSCHIACEAE												
....NITZSCHIA	150	1	99	1	26	1	43	7	--	-	10	1
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	21	3
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....ANACYSTIS	--	-	1900	13	--	-	--	-	--	-	--	-
....COCCOCHLORIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....ARTHROSPIRA	--	-	--	-	130	5	--	-	--	-	--	-
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	240#	29
....OSCILLATORIA	620	6	--	-	920#	32	190#	31	--	-	470#	58

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
*.- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

(CONTINUED)

DATE TIME	OCT 13,77 1500		NOV 16,77 1040		DEC 15,77 1345		JAN 18,78 1100		FEB 22,78 0915		MAR 9,78 1115	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	1500	10	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	26	1	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	99	1	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 7,78		MAY 3,78		JUN 25,78		JUL 27,78		AUG 8,78		SEP 19,78	
TIME	0900		1300		1030		1130		1230		0805	
TOTAL CELLS/ML	6700		8200		10000		8200		10000		1600	
DIVERSITY: DIVISION	1.1		1.2		1.4		1.5		1.1		1.6	
.CLASS	1.1		1.2		1.4		1.5		1.1		1.6	
..ORDER	1.8		1.7		1.5		2.2		1.2		1.9	
...FAMILY	1.8		2.5		2.3		2.9		2.3		2.5	
....GENUS	2.2		2.8		3.2		3.3		2.3		2.7	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...MICRACTINIACEAE												
....GOLENKINIA	--	-	250	3	89	1	--	-	--	-	--	-
....MICRACTINIUM	--	-	800	10	180	2	--	-	800	8	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	310	5	1000	13	750	8	770	9	2800#	27	--	-
....CHLORELLA	82	1	--	-	89	1	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	750	8	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	1200	15	--	-	200	13
....OOCYSTIS	62	1	--	-	400	4	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	220	2	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	450	4	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	180	2	--	-	--	-	--	-
....SCENEDESMUS	--	-	490	6	3400#	34	1400#	17	3000#	29	570#	36
....TETRASTRUM	--	-	960	12	180	2	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	160	2	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	1100#	17	120	2	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	160	2	1400#	17	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	41	1	3400#	41	890	9	320	4	--	-	160	10
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	87	6
....STEPHANODISCUS	--	-	--	-	--	-	--	-	3000#	28	--	-
...RHIZOSOLENIACEAE												
....RHIZOSOLENIA	--	-	--	-	--	-	--	-	250	2	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	14	1
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	64	1	--	-	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	180	2	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	640	8	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	--	-	--	-	*	0	64	1	--	-	72	5
...NITZSCHIACEAE												
....NITZSCHIA	--	-	310	4	--	-	900	11	190	2	100	6
...SURIRELLACEAE												
....SURIRELLA	--	-	310	4	--	-	--	-	--	-	14	1
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	250	3	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	820	12	--	-	1600#	16	450	5	--	-	3200#	20
....COCCOCHLORIS	--	-	--	-	--	-	--	-	130	1	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....ARTHROSPIRA	--	-	--	-	--	-	--	-	--	-	--	-
....LYNGBYA	310	5	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	3600#	54	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339800 SPRING CREEK BELOW LAKE ILO AT DUNN CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	APR 7,78 0900		MAY 3,78 1300		JUN 23,78 1030		JUL 27,78 1130		AUG 8,78 1230		SEP 14,78 0805	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	*	0	61	1	*	0	380	5	190	2	--	-
....LEPOCINCLIS	--	-	--	-	--	-	260	3	--	-	14	1
....PHACUS	--	-	--	-	89	1	190	2	--	-	14	1
....TRACHELOMONAS	180	3	--	-	620	6	130	2	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN					
23...	20	8.13	3.42	2.68	1.73
JUL					
27...	34	46.2	6.99	13.1	8.98

06339900 SPRING CREEK NEAR HALLIDAY, ND

LOCATION.--Lat 47°21'56", long 102°22'35", in NE¼SE¼NE¼ sec. 22, T.145 N., R.92 W., Dunn County, Hydrologic Unit 10130201, on left bank 600 ft (183 m) upstream from bridge on township road, 2 mi (3.2 km) northwest of Halliday, and 3 mi (4.8 km) upstream from Alkali Creek.

DRAINAGE AREA.--260 mi² (673 km²) approximately, of which about 25 mi² (65 km²) are probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,050 ft (625 m), from topographic map.

REMARKS.--Records fair except those for December to May, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 130 ft³/s (3.68 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	--	*2,100	51.0	^{a,b}*14.3	4.36	June 29	1830	173	4.90	4.30	1.311
May 14	1545	144	4.08	4.07	1.241						

No flow March 14-17.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	3.3	2.6	2.5	1.0	.40	600	18	20	29	4.6	4.6
2	5.0	3.0	2.6	2.4	1.0	.40	450	17	19	17	4.9	3.9
3	4.6	2.8	2.5	2.4	1.0	.40	350	16	19	11	4.3	3.9
4	4.3	3.0	2.4	2.4	1.0	.30	250	17	15	9.9	3.9	3.9
5	3.9	3.0	2.4	2.4	1.0	.20	200	18	14	11	3.9	4.3
6	3.3	3.0	2.3	2.3	.80	.10	141	17	12	10	3.9	4.3
7	4.3	3.0	2.3	2.3	.80	.10	122	20	11	9.3	3.6	3.9
8	9.0	3.0	2.2	2.3	.80	.10	94	48	11	9.0	3.6	4.3
9	6.8	3.0	2.0	2.3	.80	.10	75	82	9.0	9.9	3.3	4.3
10	5.2	3.3	2.1	2.3	.80	.10	66	102	8.6	9.9	3.3	3.9
11	5.2	3.6	2.2	2.3	.80	.10	53	77	8.6	8.3	4.3	5.5
12	4.3	3.0	2.5	2.3	.80	.10	49	82	11	61	3.9	11
13	3.6	3.0	2.9	2.3	1.0	.05	53	122	9.6	33	3.6	12
14	3.3	3.9	3.1	2.3	1.0	.00	43	117	9.3	37	3.6	8.3
15	3.3	3.8	3.2	2.3	1.0	.00	38	79	8.0	29	3.6	6.8
16	3.0	3.9	3.2	2.3	.90	.00	36	55	7.4	16	3.3	5.9
17	3.0	3.6	3.3	2.3	.80	.00	35	40	6.8	11	3.3	5.5
18	3.0	3.6	3.3	2.3	.70	.40	36	31	7.4	9.3	3.0	5.5
19	3.0	3.1	3.3	2.3	.60	1.0	36	25	8.3	17	3.0	7.1
20	3.3	2.8	3.3	2.3	.60	5.0	34	21	7.4	15	2.8	6.8
21	3.3	2.5	3.2	2.3	.70	9.0	33	19	6.8	11	2.8	7.1
22	3.0	2.2	3.0	2.3	.80	30	30	17	8.0	9.6	2.8	8.6
23	4.3	2.1	2.8	2.2	.80	70	28	20	7.7	8.0	3.6	6.8
24	4.3	2.1	2.6	2.2	.80	65	27	16	7.1	7.1	3.6	5.5
25	3.3	2.1	2.6	2.1	.70	60	26	14	7.7	6.4	3.6	4.6
26	3.0	2.3	2.5	2.0	.60	500	25	13	11	5.9	3.3	4.3
27	2.8	2.4	2.5	1.8	.50	1500	23	14	8.3	5.2	4.6	4.6
28	2.8	2.5	2.5	1.6	.40	1300	21	14	7.1	4.6	6.4	4.3
29	2.8	2.6	2.5	1.4	---	1100	20	11	39	4.6	5.9	4.6
30	3.0	2.6	2.5	1.2	---	800	19	13	60	3.9	5.9	4.6
31	3.3	---	2.5	1.2	---	700	---	23	---	4.3	4.9	---
TOTAL	122.8	88.1	82.9	66.9	22.50	6142.85	3013	1178	385.1	433.2	121.1	170.7
MEAN	3.96	2.94	2.67	2.16	.80	198	100	38.0	12.8	14.0	3.91	5.69
MAX	9.0	3.9	3.3	2.5	1.0	1500	600	122	60	61	6.4	12
MIN	2.8	2.1	2.0	1.2	.40	.00	19	11	6.8	3.9	2.8	3.9
AC-FT	244	175	164	133	45	12180	5980	2340	764	859	240	339

WTR YR 1978 TOTAL 11827.15 MEAN 32.4 MAX 1500 MIN .00 AC-FT 23460

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
13...	1330	3.6	1850	8.6	19.5	9.5	11.3	107	K32	K440	430
NOV											
16...	1000	4.2	2050	8.3	5.0	2.0	13.4	102	K19	--	570
DEC											
14...	1415	3.1	2000	7.6	4.5	.0	9.8	72	29	560	550
JAN											
19...	1500	2.3	1940	7.9	-26.5	.0	8.2	60	31	140	540
FEB											
22...	1400	.77	1790	7.6	1.0	1.0	7.3	55	K10	200	500
MAR											
28...	1600	1300	--	--	--	5.0	--	--	--	--	--
29...	1520	1040	250	7.9	11.0	2.0	10.5	81	67	38000	89
APR											
06...	1430	148	--	--	7.5	7.0	--	--	--	--	--
20...	1230	33	1030	7.0	9.5	7.0	10.9	97	--	--	250
MAY											
04...	1400	17	1300	8.2	14.0	14.0	9.4	97	26	56	330
JUN											
22...	1530	8.0	1680	8.4	14.0	13.0	8.6	102	160	160	430
28...	1050	7.0	--	--	--	21.0	--	--	--	--	--
JUL											
27...	0900	5.3	1500	8.4	17.0	23.0	6.6	81	210	360	370
AUG											
07...	1500	4.2	2000	8.4	23.0	26.0	9.8	129	550	350	410
SEP											
19...	1145	7.9	1550	8.4	10.0	11.0	10.4	101	310	350	400

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
13...	13	73	59	260	57	5.5	8.3	470	19	417	2.0
NOV											
16...	140	95	82	270	50	4.9	7.6	530	0	435	4.3
DEC											
14...	46	99	74	290	53	5.4	8.4	614	0	503	25
JAN											
19...	2	99	71	290	53	5.4	7.4	656	0	538	13
FEB											
22...	73	92	66	250	52	4.9	7.6	520	0	426	21
MAR											
28...	--	--	--	--	--	--	--	--	--	--	--
29...	0	10	5.9	30	53	1.9	5.9	132	0	108	2.7
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
20...	18	49	32	150	55	4.1	6.5	283	0	232	45
MAY											
04...	16	60	44	180	54	4.3	7.1	383	0	314	3.9
JUN											
22...	25	81	55	240	54	5.0	6.9	481	6	404	3.1
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	25	69	48	230	57	5.2	9.1	417	2	346	2.7
AUG											
07...	18	77	53	260	57	5.6	8.1	467	8	397	3.1
SEP											
19...	0	77	51	270	59	5.9	9.1	505	4	421	3.2

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 13...	480	7.0	.5	9.9	--	1150	1.56	11.2	.01	.01	.66
NOV 16...	650	8.2	.6	10	1450	1390	1.89	15.8	.03	.01	.13
DEC 14...	630	6.5	.6	18	949	1430	1.94	12.0	.18	.25	.45
JAN 19...	620	6.6	.6	19	1400	1440	1.96	9.14	.32	.14	.20
FEB 22...	560	5.5	.6	19	1270	1260	1.71	2.62	.46	.09	.20
MAR 28...	--	--	--	--	--	--	--	--	--	--	--
29...	53	3.1	.1	4.5	157	178	.24	500	.44	.34	1.4
APR 06...	--	--	--	--	--	--	--	--	--	--	--
20...	300	4.1	.3	8.1	708	698	.94	62.2	.25	.06	.84
MAY 04...	410	4.8	.4	4.0	903	899	1.22	42.2	.02	.03	1.1
JUN 22...	500	5.1	.6	7.5	1170	1140	1.55	24.7	.03	.01	.76
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	480	4.9	.5	8.7	1090	1060	1.44	15.3	.04	.00	1.0
AUG 07...	550	6.5	.5	6.0	1180	1200	1.63	13.6	.05	.00	.77
SEP 19...	560	7.9	.6	8.3	1250	1240	1.69	26.5	.05	.02	.86

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 13...	.67	.68	3.0	.09	.02	--	--	--	--	--	--
NOV 16...	.14	.17	.75	.02	.01	10	--	1	--	--	0
DEC 14...	.70	.88	3.9	.04	.02	--	--	--	--	--	--
JAN 19...	.34	.66	2.9	.04	.04	--	--	--	--	--	--
FEB 22...	.29	.75	3.3	.04	.03	--	--	--	--	--	--
MAR 28...	--	--	--	--	--	--	--	--	--	--	--
29...	1.7	2.1	9.5	.40	.14	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
20...	.90	1.2	5.1	.10	.02	0	1	1	28	300	200
MAY 04...	1.1	1.1	5.0	.07	.03	--	--	--	--	--	--
JUN 22...	.77	.80	3.5	.05	.01	0	1	1	8	200	200
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 27...	1.0	1.0	4.6	.07	.01	--	--	--	--	--	--
AUG 07...	.77	.82	3.6	.05	.01	20	--	1	--	--	200
SEP 19...	.88	.93	4.1	.04	.02	--	--	--	--	--	--

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
13...	--	--	--	--	700	--	--	--	--	--
NOV										
16...	--	--	0	--	790	--	0	--	--	0
DEC										
14...	--	--	--	--	740	--	--	--	--	--
JAN										
19...	--	--	--	--	720	--	--	--	--	--
FEB										
22...	--	--	--	--	660	--	--	--	--	--
MAR										
28...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	100	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
20...	140	0	0	2	300	0	0	0	20	0
MAY										
04...	--	--	--	--	420	--	--	--	--	--
JUN										
22...	100	0	0	0	610	0	1	0	10	10
28...	--	--	--	--	--	--	--	--	--	--
JUL										
27...	--	--	--	--	560	--	--	--	--	--
AUG										
07...	--	--	0	--	670	--	0	--	--	10
SEP										
19...	--	--	--	--	650	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)
OCT												
13...	--	--	--	--	--	--	--	50	--	--	--	--
NOV												
16...	--	--	0	--	--	0	--	30	--	4	--	--
DEC												
14...	--	--	--	--	--	--	--	50	--	--	--	--
JAN												
19...	--	--	--	--	--	--	--	60	--	--	--	--
FEB												
22...	--	--	--	--	--	--	--	30	--	--	--	--
MAR												
29...	--	--	--	--	--	--	--	130	--	--	--	--
APR												
20...	5	1	0	10	4	3	16	30	--	1	10	30
MAY												
04...	--	--	--	--	--	--	--	40	--	--	--	--
JUN												
22...	0	0	0	8	7	4	12	20	6	0	0	60
JUL												
27...	--	--	--	--	--	--	--	30	--	--	--	--
AUG												
07...	--	--	2	--	--	3	--	20	--	1	--	--
SEP												
19...	--	--	--	--	--	--	--	50	--	--	--	--

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 16...	70	--	160	--	--	.0	--	--	--	1	--	2
DEC 14...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 19...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
APR 20...	30	120	100	830	.0	.0	.17	4	0	0	3	3
MAY 04...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 22...	60	200	20	1500	.2	.0	.05	5	4	4	0	0
JUL 27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	60	--	40	--	--	.0	--	--	--	3	--	2
SEP 19...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 16...	--	--	0	--	.0	--	10	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 19...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
APR 20...	35	0	0	0	1.0	10	10	41	<6.7	<.4	8.5	1.3
MAY 04...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 22...	14	0	0	0	.4	20	10	24	--	--	--	--
JUL 27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	0	--	.0	--	0	--	--	--	--	--
SEP 19...	--	--	--	--	--	--	--	--	<15	.5	10	.6

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
13...	12	--	47	.46	--	--	--
NOV							
16...	12	.4	41	.46	--	--	--
DEC							
14...	12	.5	30	.25	--	--	--
JAN							
19...	8.7	.6	117	.74	--	--	--
FEB							
22...	--	.5	55	.11	--	--	--
MAR							
28...	--	--	599	2100	--	--	--
29...	9.8	3.5	618	1740	--	--	--
APR							
06...	--	--	59	24	--	--	--
20...	10	1.2	46	4.1	--	--	--
MAY							
04...	11	1.4	30	1.4	6	11	21
JUN							
22...	12	1.1	70	1.5	2	2	3
28...	--	--	77	1.5	--	--	--
JUL							
27...	2.1	1.8	73	1.1	--	--	--
AUG							
07...	12	1.8	69	.78	--	--	--
SEP							
19...	11	.7	28	.60	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT							
13...	--	--	--	--	--	--	--
NOV							
16...	--	--	--	--	--	--	--
DEC							
14...	--	--	--	--	--	--	--
JAN							
19...	--	--	--	--	--	--	--
FEB							
22...	--	--	--	--	--	--	--
MAR							
28...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
APR							
06...	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--
MAY							
04...	40	48	56	70	85	97	100
JUN							
22...	16	30	40	59	84	96	100
28...	--	--	--	--	--	--	--
JUL							
27...	--	--	--	--	--	--	--
AUG							
07...	--	--	--	--	--	--	--
SEP							
19...	--	--	--	--	--	--	--

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 13,77	NOV 16,77	DEC 14,77	JAN 19,78	FEB 22,78	MAR 29,78
TIME	1330	1000	1415	1500	1400	1520
TOTAL CELLS/ML	1600	870	73	160	100	4600
DIVERSITY: DIVISION	0.9	1.9	1.0	1.6	0.9	1.2
.CLASS	1.3	1.9	1.3	1.6	0.9	1.2
..ORDER	2.1	2.0	1.7	1.8	0.9	1.2
...FAMILY	2.6	3.1	2.6	2.4	2.2	2.4
....GENUS	2.9	3.6	2.7	2.4	2.2	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....EUTETRAMORUS	54	3	--	-	--	-	--	-	--	-	--	-
...CHARACIACEAE												
....CHARACIUM	--	-	--	-	--	-	--	-	--	-	--	-
....SCHROEDERIA	--	-	38	4	--	-	--	-	7	6	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	190	12	98	11	7	9	19	12	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	130	8	8	1	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	8	1	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	190#	22	--	-	--	-	--	-	--	-
....SCENEDESMUS	190	12	90	10	26#	36	37#	23	26#	25	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...TETRASPORACEAE												
....TETRASPORA	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	450#	28	--	-	--	-	--	-	--	-	290	6
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	120	7	--	-	7	9	6	4	--	-	--	-
....MELOSIRA	--	-	30	3	--	-	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	290	6
....COCCONEIS	--	-	15	2	--	-	--	-	--	-	290	6
...CYMBELLACEAE												
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-	290	6
...DIATOMACEAE												
....DIATOMA	--	-	--	-	7	9	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	7	9	--	-	--	-	--	-
....SYNEDRA	--	-	45	5	7	9	6	4	7	6	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	8	1	--	-	--	-	7	6	290	6
...NAVICULACEAE												
....ANOMOEONEIS	--	-	--	-	--	-	*	0	--	-	--	-
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	290	6
....NAVICULA	40	2	38	4	--	-	12	8	39#	38	860#	19
...NITZSCHIACEAE												
....NITZSCHIA	200	13	38	4	--	-	25#	15	20#	19	290	6
...SURIRELLACEAE												
....SURIRELLA	--	-	23	3	7	9	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	230	14	--	-	7	9	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	OCT 13,77 1330		NOV 16,77 1000		DEC 14,77 1415		JAN 19,78 1500		FEB 22,78 1400		MAR 29,78 1520	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	110	12	--	-	--	-	--	-	--	-
....COCCOCHLORIS	--	-	--	-	--	-	*	0	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	56#	35	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-	1700#	38
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	30	3	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	90	10	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	15	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 20,78	MAY 4,78	JUN 22,78	JUL 27,78	AUG 8,78	SEP 19,78
TIME	1230	1400	1530	0900	1500	1145
TOTAL CELLS/ML	19000	13000	9300	9800	1900	8400
DIVERSITY: DIVISION	1.6	1.5	1.4	1.8	1.3	1.7
.CLASS	1.6	1.5	1.4	1.8	1.3	1.7
..ORDER	1.9	2.0	1.5	2.3	1.6	2.4
...FAMILY	2.0	2.3	1.8	2.7	2.5	2.8
....GENUS	2.0	2.3	2.5	3.2	2.7	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....EUTETRAMORUS	--	-	--	-	--	-	--	-	--	-	--	-
...CHARACIACEAE												
....CHARACIUM	--	-	--	-	*	0	--	-	--	-	--	-
....SCHROEDERIA	110	1	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	200	2	--	-	170	9	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	49	1	--	-	--	-	--	-
...MICRACTINIACEAE												
....MICRACTINIUM	1300	7	300	2	*	0	--	-	32	2	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	150	1	74	1	120	1	190	10	320	4
....DICTYOSPHAERIUM	--	-	--	-	--	-	2200#	22	--	-	640	8
....KIRCHNERIELLA	--	-	150	1	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	250	3	--	-	--	-	53	1
....SELENASTRUM	--	-	--	-	*	0	--	-	--	-	530	6
....TETRAEDRON	--	-	76	1	49	1	*	0	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	--	-	630	6	43	2	--	-
....SCENEDESMUS	--	-	3600#	29	1700#	18	590	6	860#	44	960	11
....TETRASTRUM	--	-	--	-	98	1	160	2	--	-	--	-
..TETRASPORALES												
...TETRASPORACEAE												
....TETRASPORA	--	-	--	-	--	-	--	-	43	2	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	3400#	18	1500	12	--	-	--	-	--	-	110	1
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	230	2	--	-	--	-
....COSMARIUM	--	-	--	-	74	1	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	*	0	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	7400#	39	5000#	40	150	2	550	6	110	6	1100	13
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	160	2
....STEPHANODISCUS	--	-	--	-	--	-	--	-	11	1	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	*	0	--	-	--	-
...CYMBELLACEAE												
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	*	0	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....ANOMOEONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....DIPLONEIS	--	-	--	-	49	1	--	-	--	-	53	1
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	49	1	78	1	--	-	110	1
...NITZSCHIACEAE												
....NITZSCHIA	210	1	150	1	--	-	1800#	18	270	14	2000#	23
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

06339900 SPRING CREEK NEAR HALLIDAY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 20,78		MAY 4,78		JUN 22,78		JUL 27,78		AUG 8,78		SEP 19,78	
TIME	1230		1400		1530		0900		1500		1145	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	110	1	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	21	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	1100	8	1800#	20	160	2	--	-	1500#	18
....COCCOCHLORIS	--	-	--	-	--	-	--	-	32	2	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	390	4	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	640	8
...RIVULARIACEAE												
....RAPHIDIOPSIS	6200#	33	--	-	--	-	--	-	--	-	--	-
..CHROOCOCCALES												
...CHROOCOCCAEAE												
....GOMPHOSPHAERIA	--	-	--	-	3800#	41	2300#	24	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	160	2	75	4	53	1
....LEPOCINCLIS	--	-	--	-	--	-	*	0	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	11	1	--	-
....TRACHELOMONAS	110	1	380	3	880	9	310	3	75	4	210	3
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	76	1	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 04...	14	4.42	.000	5.35	3.62
AUG 07...	11	1.50	.910	103	91.4

06340000 SPRING CREEK AT ZAP, ND

LOCATION.--Lat 47°17'10", long 101°55'31", in SW¼ sec.14, T.144 N., R.89 W., Mercer County, Hydrologic Unit 10130201, on right bank 250 ft (76 m) downstream from Burlington Northern Railway bridge in Zap, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--549 mi² (1,422 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to September 1924, October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,819.39 ft (554.550 m) National Geodetic Vertical Datum of 1929. Mar. 4 to Sept. 30, 1924, nonrecording gage at site 250 ft (76 m) upstream at different datum. Oct. 1, 1945, to Sept. 30, 1947, nonrecording gage 250 ft (76 m) upstream at datum 1.12 ft (0.341 m) higher.

REMARKS.--Records fair. Flow slightly regulated by Lake Ilo 56 mi (90 km) upstream, capacity, 7,130 acre-ft (8.79 hm³).

AVERAGE DISCHARGE.--33 years, 43.8 ft³/s (1.240 m³/s), 31,730 acre-ft/yr (39.1 hm³/yr); median of yearly mean discharges, 39 ft³/s (1.10 m³/s), 28,300 acre-ft/yr (35 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,130 ft³/s (174 m³/s) Apr. 7, 1952, gage height, 20.03 ft (6.105 m); maximum gage height, 20.70 ft (6.509 m) Mar. 15, 1972; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known occurred in about 1902, from ice jam. Floods of February 1913 and March 1943 reached a stage of about 20 ft (6.10 m) and 19.5 ft (5.94 m), respectively, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,400 ft³/s (96.3 m³/s) Mar. 29, gage height, 18.0 ft (5.49 m), from graph based on gage readings, only peak above base of 1,000 ft³/s (28.3 m³/s); minimum daily, 1.5 ft³/s (0.042 m³/s) Jan. 27 to Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	7.1	9.2	7.0	1.5	2.5	940	40	41	114	13	6.1
2	10	7.4	8.5	6.5	1.5	2.5	404	37	48	66	12	6.1
3	10	7.4	8.5	6.0	1.5	2.5	395	34	44	54	13	10
4	9.4	7.4	8.3	6.0	2.0	2.5	369	37	41	42	12	10
5	11	7.4	7.9	6.0	2.0	2.5	341	40	36	35	12	9.9
6	9.0	7.8	7.5	6.0	2.5	2.5	318	42	32	74	11	9.0
7	11	6.4	7.5	6.0	2.5	2.5	271	46	27	53	12	9.0
8	14	7.4	7.5	5.5	2.5	2.5	195	74	26	39	12	9.4
9	11	7.4	7.3	5.0	2.5	3.0	154	108	24	29	11	9.4
10	11	7.4	7.1	4.5	2.5	4.0	134	106	22	27	11	9.9
11	14	7.8	7.4	4.0	2.5	4.0	124	113	24	24	11	10
12	13	8.2	7.8	3.5	2.5	4.0	111	112	26	24	11	19
13	12	7.8	8.5	3.5	2.5	4.0	104	225	24	27	11	16
14	9.0	8.2	9.5	3.5	2.5	4.0	104	146	23	74	11	13
15	9.0	9.0	10	3.5	2.5	4.0	97	132	25	47	10	13
16	9.0	9.9	10	3.0	2.0	4.0	90	106	28	48	10	16
17	9.0	9.9	11	2.5	2.0	4.0	89	85	25	38	11	18
18	8.2	9.2	11	2.5	2.0	6.0	82	72	22	35	11	16
19	7.1	8.7	11	2.5	2.0	10	89	65	19	29	11	14
20	7.1	8.0	10	2.5	2.0	20	84	57	18	27	11	13
21	8.2	7.0	9.5	2.5	2.5	90	84	47	17	25	9.4	12
22	6.8	6.8	9.0	2.5	2.5	190	64	43	19	27	10	13
23	7.1	6.8	9.0	2.5	2.5	230	61	44	19	23	9.4	12
24	7.1	6.5	9.0	2.5	2.5	450	61	40	18	22	9.4	12
25	7.1	6.5	9.0	2.5	2.5	560	61	37	21	19	9.4	13
26	7.4	6.8	8.5	2.0	2.5	1200	58	34	24	18	11	12
27	8.2	7.0	8.5	1.5	2.5	2300	54	32	25	17	3.8	12
28	8.2	7.5	8.5	1.5	2.5	2800	50	27	32	14	3.8	11
29	8.2	8.5	8.0	1.5	---	3100	46	27	29	12	5.6	9.4
30	8.2	9.0	8.0	1.5	---	2680	42	29	69	13	6.4	11
31	7.8	---	7.5	1.5	---	1810	---	41	---	13	6.4	---
TOTAL	289.1	232.2	270.0	111.5	63.5	15501.0	5076	2078	848	1109	311.6	354.2
MEAN	9.33	7.74	8.71	3.60	2.27	500	169	67.0	28.3	35.8	10.1	11.8
MAX	14	9.9	11	7.0	2.5	3100	940	225	69	114	13	19
MIN	6.8	6.4	7.1	1.5	1.5	2.5	42	27	17	12	3.8	6.1
AC-FT	573	461	536	221	126	30750	10070	4120	1680	2200	618	703

CAL YR 1977 TOTAL 5361.0 MEAN 14.7 MAX 504 MIN 1.7 AC-FT 10670
WTR YR 1978 TOTAL 26244.1 MEAN 71.9 MAX 3100 MIN 1.5 AC-FT 52060

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT											
27...	1130	7.6	1520	8.4	--	8.0	10.1	91	380	0	73
NOV											
22...	1350	6.9	1900	8.2	--	.0	11.4	83	480	0	88
DEC											
19...	1320	12	2025	8.0	--	.0	11.1	81	550	46	100
JAN											
24...	1055	2.7	1975	7.8	--	.0	9.5	69	540	25	100
FEB											
21...	1400	2.6	1770	7.7	1.5	.0	9.6	70	490	0	96
MAR											
21...	1250	96	--	--	--	.5	--	--	--	--	--
23...	1610	248	--	--	--	.5	--	--	--	--	--
27...	1300	2280	190	--	--	.5	--	--	--	--	--
29...	1320	3110	--	--	--	2.0	--	--	--	--	--
31...	1320	1830	265	--	--	5.0	--	--	--	--	--
APR											
02...	1310	368	405	--	--	3.0	--	--	--	--	--
07...	1220	274	720	8.1	--	6.0	10.0	77	220	77	44
26...	1320	59	1300	8.3	--	12.0	11.0	109	380	68	78
MAY											
22...	1335	43	1200	8.3	--	20.0	8.5	99	330	22	66
JUN											
27...	1405	25	1625	8.3	--	23.0	8.4	103	460	62	90
JUL											
21...	0940	24	1192	8.2	--	19.5	7.9	91	330	28	65
AUG											
23...	0950	9.9	1610	8.3	--	17.0	7.5	56	390	0	77
SEP											
25...	1515	12	1700	8.4	--	14.0	10.3	--	370	0	77

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT											
27...	49	240	57	5.3	8.2	510	0	420	3.2	450	6.7
NOV											
22...	63	300	57	6.0	8.9	590	0	480	6.0	590	8.9
DEC											
19...	72	300	54	5.6	8.8	610	0	500	9.8	640	8.3
JAN											
24...	71	300	54	5.6	8.5	630	0	520	16	630	8.2
FEB											
21...	61	260	53	5.1	8.2	600	0	490	19	520	7.1
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
07...	26	77	42	2.3	7.8	170	0	140	2.2	230	3.2
26...	45	180	50	4.0	7.4	380	0	310	3.0	400	5.5
MAY											
22...	41	180	53	4.3	7.6	380	0	310	3.0	370	6.3
JUN											
27...	56	240	53	4.9	8.6	480	0	390	3.8	520	5.7
JUL											
21...	41	160	50	3.8	8.7	370	0	300	3.7	350	6.4
AUG											
23...	47	240	57	5.3	9.1	490	0	400	3.9	460	7.3
SEP											
25...	44	260	60	5.9	8.8	500	10	430	3.3	520	8.6

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
27...	.5	9.5	1080	--	1090	1.47	22.2	--	.02	.00
NOV										
22...	.4	7.7	1350	--	1360	1.84	25.2	--	.08	.01
DEC										
19...	.5	13	1460	--	1440	1.99	47.3	--	.25	.20
JAN										
24...	.5	19	1430	--	1450	1.94	10.4	--	.45	.08
FEB										
21...	.5	18	1270	--	1270	1.73	8.92	--	.48	.03
MAR										
21...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
02...	--	--	--	--	--	--	--	--	--	--
07...	.1	7.0	490	--	479	.67	363	--	.27	.25
26...	.3	9.0	910	--	913	1.24	145	--	.00	.01
MAY										
22...	.4	5.5	844	--	864	1.15	98.0	--	.01	.01
JUN										
27...	.5	11	1160	--	1170	1.58	78.3	--	.05	.03
JUL										
21...	.4	11	801	--	825	1.09	52.8	--	.01	.01
AUG										
23...	.5	11	1100	--	1090	1.50	29.4	--	.00	.02
SEP										
25...	.5	8.2	1160	1210	1180	1.58	38.2	16	.01	.00

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL) (01107)
OCT								
27...	.61	.61	.63	2.8	.06	--	--	--
NOV								
22...	.36	.37	.45	2.0	.01	.01	--	--
DEC								
19...	.69	.89	1.1	5.0	.02	--	--	--
JAN								
24...	.51	.59	1.0	4.6	.00	--	--	--
FEB								
21...	.20	.23	.71	3.1	.03	--	--	--
APR								
07...	.95	1.2	1.5	6.5	.19	--	810	790
26...	.84	.85	.85	3.8	.07	--	330	330
MAY								
22...	.84	.85	.86	3.8	.08	--	--	--
JUN								
27...	.75	.78	.83	3.7	.05	--	10	0
JUL								
21...	.79	.80	.81	3.6	.08	--	--	--
AUG								
23...	1.3	1.3	1.3	5.8	.05	--	--	--
SEP								
25...	.61	.61	.62	2.7	.05	--	280	280

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)
OCT									
27...	--	--	--	--	--	--	--	460	--
NOV									
22...	--	--	--	--	--	--	--	1	--
DEC									
19...	--	--	--	--	--	--	--	570	--
JAN									
24...	--	--	--	--	--	--	--	500	--
FEB									
21...	--	--	--	--	--	--	--	430	--
APR									
07...	20	3	1	2	10	0	10	150	2
26...	0	2	1	1	0	0	0	260	1
MAY									
22...	--	--	--	--	--	--	--	310	--
JUN									
27...	10	2	0	2	5	0	5	460	0
JUL									
21...	--	--	--	--	--	--	--	410	--
AUG									
23...	--	--	--	--	--	--	--	450	--
SEP									
25...	0	1	--	1	0	0	0	470	1

DATE	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
APR								
07...	1	1	10	10	0	12	11	1
26...	1	0	0	0	0	5	4	1
MAY								
22...	--	--	--	--	--	--	--	--
JUN								
27...	0	0	25	20	5	5	2	3
JUL								
21...	--	--	--	--	--	--	--	--
AUG								
23...	--	--	--	--	--	--	--	--
SEP								
25...	1	0	0	0	0	4	3	1

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM SUS-PENDED RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
APR										
07...	4900	--	120	--	--	2	20	0	20	230
26...	810	--	20	5	2	3	40	0	50	130
MAY										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
27...	840	820	20	3	0	4	60	0	70	140
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	690	670	20	7	6	1	70	0	70	80

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MANGA- NESE, SUS- PENDED RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	MOLYB- DENUM, SUS- PENDED RECOV. (UG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDED RECOV- ERABLE (UG/L AS NI)
APR										
07...	140	90	.0	.0	.0	--	--	1	12	10
26...	70	60	.0	.0	.0	0	0	0	9	8
MAY										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
27...	110	30	.0	.0	.0	7	2	5	20	20
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	50	30	1.8	1.5	.5	5	4	1	7	5

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)
APR									
07...	2	0	0	0	2.0	60	50	10	--
26...	1	0	0	0	1.0	80	70	10	--
MAY									
22...	--	--	--	--	--	--	--	--	--
JUN									
27...	0	0	0	0	.5	30	10	20	--
JUL									
21...	--	--	--	--	--	--	--	--	--
AUG									
23...	--	--	--	--	--	--	--	--	--
SEP									
25...	2	0	0	0	.0	20	20	0	<11

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT									
27...	--	--	--	--	--	--	--	--	2.2
NOV									
22...	--	--	--	--	--	--	--	--	.4
DEC									
19...	--	--	--	--	--	--	--	10	--
JAN									
24...	--	--	--	--	--	--	--	7.9	--
FEB									
21...	--	--	--	--	--	--	--	6.1	.3
APR									
07...	--	--	--	--	--	--	--	8.5	--
26...	--	--	--	--	--	--	--	9.0	1.8
MAY									
22...	--	--	--	--	--	--	--	--	1.9
JUN									
27...	--	--	--	--	--	--	--	9.6	1.3
JUL									
21...	--	--	--	--	--	--	--	9.7	1.8
AUG									
23...	--	--	--	--	--	--	--	8.9	.8
SEP									
25...	.6	9.4	.8	8.6	.8	.17	2.3	9.4	.8

06340000 SPRING CREEK AT ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT												
27...	63	1.3	--	--	--	--	--	--	--	--	--	--
DEC												
19...	37	1.2	--	--	--	--	--	--	--	--	--	--
JAN												
24...	14	.10	--	--	--	--	--	--	--	--	--	--
FEB												
21...	9	.06	--	--	--	--	--	--	--	--	--	--
MAR												
21...	54	14	--	--	--	--	--	--	--	--	--	--
23...	160	107	52	77	92	96	100	--	--	--	--	--
29...	872	7320	42	70	88	91	96	100	--	--	--	--
APR												
07...	214	158	--	--	--	--	--	--	--	--	--	--
26...	37	5.9	--	--	--	--	--	--	--	--	--	--
MAY												
22...	56	6.5	--	--	--	--	--	--	--	--	--	--
JUN												
19...	--	--	--	--	--	--	--	--	17	47	99	100
27...	27	1.8	--	--	--	--	--	--	--	--	--	--
JUL												
21...	62	4.1	--	--	--	--	--	--	--	--	--	--
AUG												
23...	23	.61	--	--	--	--	--	--	--	--	--	--
SEP												
25...	21	.69	--	--	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
JUN										
19...	11	--	--	--	--	--	--	--	--	--
27...	18	19	24	51	56	63	71	80	100	86
JUL										
21...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	--	--	--	--	--	--	--	--	--	--
SEP										
25...	--	--	--	--	--	--	--	--	--	--

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass ($\mu g/m^2$) Dry weight	Biomass ($\mu g/m^2$) Ash weight	Chlorophyll a ($\mu g/m^2$)	Chlorophyll b ($\mu g/m^2$)	Biomass pigment ratio	Sampling method
Jun. 27	37	551	236	1.92	0.030	164	Polyethylene strip
Aug. 23	33	3,310	2,440	2.70	.260	322	Polyethylene strip
Sept.25	34	9,840	8,430	10.2	1.49	138	Polyethylene strip

06340200 WEST BRANCH OTTER CREEK NEAR BEULAH, ND

LOCATION.--Lat 47°08'05", long 101°39'35", in NW¼NW¼SW¼ sec.12, T.142 N., R.87 W., Oliver County, Hydrologic Unit 10130201, and on right bank 10 mi (16 km) southeast of Beulah.

DRAINAGE AREA.--26.5 mi² (68.6 km²).

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--13 years, 3.41 ft³/s (0.097 m³/s), 2,470 acre-ft/yr (3.05 hm³/yr); median of yearly mean discharges, 2.9 ft³/s (0.082 m³/s), 2,100 acre-ft/yr (2.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s (671 m³/s) June 24, 1966, gage height, 17.2 ft (5.243 m), from floodmark, from rating curve extended above 77 ft³/s (2.18 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	320	9.06	Backwater from ice		Mar. 27	0230	*514	14.6	*7.30	2.225

No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	.38	.16	.02	.00	.00	16	1.2	.08	.12	.00	.00
2	.56	.22	.16	.02	.00	.00	6.4	1.0	.08	.10	.00	.00
3	.53	.18	.16	.02	.00	.00	7.4	.85	.04	.06	.00	.00
4	.53	.14	.16	.01	.00	.00	28	.74	.04	.08	.00	.00
5	.50	.14	.16	.01	.00	.00	24	.56	.04	.10	.00	.00
6	.47	.16	.16	.01	.00	.00	22	.50	.04	.06	.00	.00
7	.53	.16	.16	.01	.00	.00	9.6	.60	.02	.04	.00	.00
8	.56	.18	.16	.00	.00	.03	5.4	.85	.02	.06	.00	.00
9	1.6	.18	.14	.00	.00	.03	4.8	2.6	.02	.00	.00	.00
10	2.0	.18	.14	.00	.00	.06	4.6	5.4	.01	.00	.00	.00
11	3.5	.16	.14	.00	.00	.04	4.4	2.2	.60	.00	.00	.00
12	1.6	.16	.40	.00	.00	.04	3.8	1.6	.30	.16	.00	.00
13	.74	.18	.50	.00	.00	.03	4.2	1.1	.14	.12	.00	.00
14	.56	.16	.30	.00	.00	.04	4.4	.74	.12	.10	.00	.00
15	.28	.18	.20	.00	.00	.10	3.8	.64	.14	.06	.00	.00
16	.60	.16	.18	.00	.00	.50	3.6	.60	.14	.06	.00	.00
17	.16	.16	.16	.00	.00	1.0	3.8	.50	.12	.06	.00	.00
18	.10	.14	.14	.00	.00	1.5	4.0	.36	.12	.08	.00	.00
19	.12	.18	.12	.00	.00	3.0	4.0	.33	.12	.16	.00	.00
20	.12	.18	.12	.00	.00	16	3.5	.28	.12	.02	.00	.00
21	.08	.18	.10	.00	.00	90	2.8	.25	.12	.08	.00	.00
22	.04	.18	.10	.00	.00	134	2.2	.20	.12	.08	.00	.00
23	.04	.18	.10	.00	.00	150	2.4	.16	.12	.08	.00	.00
24	.02	.18	.10	.00	.00	113	2.4	.16	.12	.04	.00	.00
25	.08	.18	.10	.00	.00	172	2.9	.14	.12	.02	.00	.00
26	.08	.18	.08	.00	.00	386	2.4	.14	.12	.01	.00	.00
27	.06	.18	.08	.00	.00	351	2.0	.12	.12	.01	.00	.00
28	.08	.18	.06	.00	.00	115	1.6	.10	.08	.01	.00	.00
29	.08	.16	.04	.00	---	55	1.5	.10	.10	.01	.00	.00
30	.10	.16	.04	.00	---	75	1.3	.10	.12	.04	.00	.00
31	1.7	---	.02	.00	---	48	---	.10	---	.02	.00	---
TOTAL	18.06	5.34	4.64	.10	.00	1711.37	189.2	24.22	3.45	1.84	.00	.00
MEAN	.58	.18	.15	.003	.000	55.2	6.31	.78	.12	.059	.000	.000
MAX	3.5	.38	.50	.02	.00	386	28	5.4	.60	.16	.00	.00
MIN	.02	.14	.02	.00	.00	.00	1.3	.10	.01	.00	.00	.00
AC-FT	36	11	9.2	.2	.00	3390	375	48	6.8	3.6	.00	.00

CAL YR 1977 TOTAL 212.84 MEAN .58 MAX 33 MIN .00 AC-FT 422
WTR YR 1978 TOTAL 1958.22 MEAN 5.36 MAX 386 MIN .00 AC-FT 3880

06340500 KNIFE RIVER AT HAZEN, ND

LOCATION.--Lat 47°17'06", long 101°37'26", in SE¼ sec.18, T.144 N., R.86 W., Mercer County, Hydrologic Unit 10130201, on right bank at upstream side of highway bridge, 0.5 mi (0.8 km) south of Hazen, and 3 mi (5 km) upstream from Antelope Creek.

DRAINAGE AREA.--2,240 mi^3 (5,800 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to November 1928, March 1929 to September 1933, August 1937 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1146: 1943. WSP 1279: 1930-31, 1932-33(M). WSP 1917: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,712.35 ft (521.924 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 25, 1947, nonrecording gages at same site and datum.

REMARKS.--Records good except those for the winter period, which are fair. Small diversions above station. Slight regulation by Lake Ilo 81 mi (130 km) upstream, capacity, 7,130 acre-ft (8.79 hm^3).

AVERAGE DISCHARGE.--45 years (1929-33, 1937-78), 181 ft^3/s (5.126 m^3/s), 131,100 acre-ft/yr (162 hm^3/yr); median of yearly mean discharges, 150 ft^3/s (4.25 m^3/s), 109,000 acre-ft/yr (130 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft^3/s (1,000 m^3/s) June 24, 1966, gage height, 27.01 ft (8.233 m); no flow at times in 1933, 1959, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, the floods of 1943 and 1950 were not exceeded during the period 1884 to 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft^3/s (312 m^3/s) Mar. 27, gage height, 25.05 ft (7.635 m), from graph based on gage readings, backwater from ice, only peak above base of 1,500 ft^3/s (42.5 m^3/s); minimum daily discharge, 13 ft^3/s (0.37 m^3/s) Feb. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	24	25	25	14	14	5490	199	162	286	49	39
2	71	23	25	25	14	14	3310	184	156	355	48	133
3	58	23	25	25	14	14	2240	170	155	210	46	80
4	56	22	25	24	14	14	1860	160	156	176	44	60
5	77	22	25	24	14	14	1660	156	209	196	43	48
6	76	22	24	24	14	14	1550	159	191	181	42	43
7	91	22	24	24	14	14	1370	176	163	201	41	40
8	89	21	24	24	14	14	1100	219	141	144	40	37
9	99	21	25	23	14	16	877	303	123	118	39	37
10	106	23	26	23	14	24	750	399	110	103	37	36
11	185	22	27	22	14	36	644	517	104	92	36	37
12	183	23	28	21	14	46	570	685	104	129	36	50
13	158	23	31	21	14	58	509	719	99	94	35	52
14	122	23	32	21	14	50	455	739	95	101	34	79
15	91	23	32	20	14	50	421	697	91	179	34	236
16	78	24	33	20	14	48	392	615	90	157	34	774
17	69	24	33	20	14	36	378	442	87	139	35	912
18	59	24	34	19	14	40	377	337	80	107	35	486
19	52	24	34	18	13	60	354	284	75	105	35	244
20	47	25	34	18	13	120	331	262	72	95	35	150
21	42	25	33	17	14	250	307	213	69	87	34	113
22	39	25	32	17	14	1900	291	175	68	82	34	92
23	35	26	32	16	15	3700	285	169	66	80	34	81
24	33	25	30	15	15	4400	274	155	67	73	34	73
25	30	24	29	15	16	4700	261	145	71	70	34	65
26	30	26	28	15	16	6400	253	349	71	71	35	63
27	30	26	27	15	15	8100	250	572	74	72	34	61
28	26	26	27	15	14	10500	243	291	129	67	34	57
29	26	25	26	15	---	9200	233	193	162	60	34	54
30	24	25	26	14	---	8690	217	179	135	56	34	51
31	25	---	26	14	---	7780	---	164	---	52	34	---
TOTAL	2193	711	882	609	397	66316	27252	10027	3375	3938	1153	4283
MEAN	70.7	23.7	28.5	19.6	14.2	2139	908	323	113	127	37.2	143
MAX	185	26	34	25	16	10500	5490	739	209	355	49	912
MIN	24	21	24	14	13	14	217	145	66	52	34	36
AC-FT	4350	1410	1750	1210	787	131500	54050	19890	6690	7810	2290	8500

CAL YR 1977 TOTAL 28809 MEAN 78.9 MAX 1100 MIN 12 AC-FT 57140
WTR YR 1978 TOTAL 121136 MEAN 332 MAX 10500 MIN 13 AC-FT 240300

06340500 KNIFE RIVER AT HAZEN, ND--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-51, 1970-71, 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,800 micromhos Feb. 20, 1977; minimum daily, 225 micromhos Mar. 24, 1978.
WATER TEMPERATURES: Maximum daily, 30.0°C July 18, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,230 micromhos Jan. 29; minimum daily, 225 micromhos Mar. 24.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 15; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT										
26...	1250	30	1370	8.3	--	9.0	47	--	10.6	97
NOV										
25...	1300	25	1625	8.2	--	.0	28	--	10.6	77
DEC										
22...	1240	32	2040	8.0	-4.0	.0	32	--	11.0	84
JAN										
24...	1545	15	2150	7.8	--	.0	23	--	9.6	70
FEB										
22...	1045	14	2000	7.7	2.5	.0	12	--	9.6	70
MAR										
20...	1515	122	1340	--	--	.5	--	--	--	--
23...	1330	3600	280	--	--	.5	--	--	--	--
25...	1230	4680	280	--	--	1.0	--	--	--	--
28...	1550	10240	240	--	--	2.0	--	--	--	--
29...	1610	--	325	--	--	4.0	--	--	--	--
30...	1320	8690	340	--	--	4.5	--	--	--	--
APR										
04...	1530	1670	535	8.1	12.5	5.0	100	--	11.0	104
27...	1325	246	1400	8.5	21.0	13.0	24	23	10.6	106
MAY										
23...	1335	160	1490	8.3	25.0	21.0	43	28	9.0	106
JUN										
09...	1120	--	1460	--	--	20.0	--	--	--	--
28...	1225	111	1490	8.3	30.0	24.5	15	36	8.4	106
JUL										
26...	1200	72	1310	8.3	26.0	24.0	10	25	7.4	94
AUG										
22...	1100	34	1480	8.3	24.0	19.0	11	19	8.4	96
SEP										
26...	1220	63	1040	8.1	17.0	14.5	--	40	9.3	--

DATE	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)
OCT										
26...	--	183	--	300	0	62	35	230	62	5.8
NOV										
25...	--	247	210	390	0	80	46	270	60	6.0
DEC										
22...	--	450	275	450	0	85	58	350	62	7.2
JAN										
24...	--	400	112	500	0	99	61	360	61	7.0
FEB										
22...	--	300	340	470	0	100	54	320	59	6.4
APR										
04...	--	--	K1130	150	27	32	17	64	47	2.3
27...	38	270	733	370	23	81	41	200	53	4.5
MAY										
23...	36	--	--	380	23	78	44	240	57	5.4
JUN										
09...	--	--	--	--	--	--	--	--	--	--
28...	34	900	1433	360	0	76	42	240	58	5.5
JUL										
26...	30	170	110	320	0	68	37	220	59	5.3
AUG										
22...	29	170	102	340	0	69	40	230	59	5.5
SEP										
26...	32	240	K190	230	0	52	24	150	58	4.3

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, TOTAL (MG/L AS F) (00951)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT										
26...	2.2	440	0	360	3.5	390	5.8	--	.4	11
NOV										
25...	8.3	580	0	480	5.9	460	6.9	--	.4	13
DEC										
22...	9.6	660	0	540	11	590	7.8	--	.5	14
JAN										
24...	8.8	730	0	600	19	650	7.9	--	.5	16
FEB										
22...	9.2	730	0	600	23	540	8.5	--	.5	18
MAR										
20...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
APR										
04...	7.0	150	0	123	1.9	170	3.0	--	.1	6.4
27...	8.0	400	12	350	2.1	420	5.4	.3	.3	7.8
MAY										
23...	8.2	430	0	350	3.4	510	5.8	1.7	.3	8.6
JUN										
09...	--	--	--	--	--	--	--	--	--	--
28...	9.0	500	0	410	4.0	440	10	--	.4	14
JUL										
26...	8.7	470	0	390	3.8	370	5.7	.5	.4	12
AUG										
22...	8.5	510	0	420	4.1	370	6.0	.3	.4	14
SEP										
26...	9.1	--	--	280	--	260	5.8	.3	.3	9.8

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
26...	957	954	1.30	77.5	--	--	.08	.09	.05
NOV									
25...	1160	1170	1.58	78.3	--	--	.96	.06	.12
DEC									
22...	1480	1440	2.01	128	--	--	.26	.28	.16
JAN									
24...	1530	1570	2.08	62.0	--	--	.06	.06	.12
FEB									
22...	1420	1410	1.93	53.7	--	--	.58	.58	.14
MAR									
20...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
APR									
04...	358	375	.49	1810	--	--	.30	.31	.28
27...	967	973	1.32	642	.01	.01	.02	.02	.03
MAY									
23...	1080	1110	1.47	467	.01	.01	.02	.01	.01
JUN									
09...	--	--	--	--	--	--	--	--	--
28...	1040	1080	1.41	312	.05	.01	.06	.01	.02
JUL									
26...	950	954	1.29	186	.00	.01	.01	.03	.01
AUG									
22...	994	990	1.35	91.3	.02	.00	.02	.04	.02
SEP									
26...	683	680	.93	116	.13	.01	.14	--	.01

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL) (01107)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT 26...	.75	.80	--	.50	.88	3.9	.09	.02	--	--	--	--
NOV 25...	.53	.65	--	.43	1.6	7.1	.04	.00	--	--	--	--
DEC 22...	.41	.59	--	--	.85	3.8	.03	.06	180	180	0	1
JAN 24...	.31	.43	--	.42	.49	2.2	.00	.00	--	--	--	--
FEB 22...	.23	.37	--	.30	.95	4.2	.03	.02	--	--	--	--
APR 04...	2.0	2.3	.60	1.7	2.6	12	.65	.05	10	0	10	5
27...	.71	.74	.20	.54	.76	3.4	.06	.00	950	--	--	3
MAY 23...	.86	.87	.31	.56	.89	3.9	.07	.02	540	--	--	1
JUN 28...	.67	.69	.27	.42	.75	3.3	.11	.01	710	710	0	2
JUL 26...	1.2	1.2	.63	.57	1.2	5.4	.07	.01	670	--	--	3
AUG 22...	.59	.61	.01	.60	.63	2.8	.05	.01	300	--	--	2
SEP 26...	.99	1.0	.52	.48	1.1	5.0	.09	.02	970	--	--	1

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)
OCT 26...	--	--	--	--	--	--	--	--	--	290	--
NOV 25...	--	--	--	--	--	--	--	--	--	310	--
DEC 22...	0	1	200	200	0	0	0	0	400	380	0
JAN 24...	--	--	--	--	--	--	--	--	--	370	--
FEB 22...	--	--	--	--	--	--	--	--	--	330	--
APR 04...	3	2	200	200	0	0	0	10	140	110	2
27...	--	--	100	--	--	0	--	--	270	230	1
MAY 23...	--	--	200	--	--	5	--	--	300	290	1
JUN 28...	1	1	400	200	200	0	0	0	380	330	1
JUL 26...	--	--	300	--	--	0	--	--	350	320	2
AUG 22...	--	--	300	--	--	10	--	--	340	310	1
SEP 26...	--	1	0	0	100	0	--	--	240	--	4

DATE	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
DEC 22...	0	0	0	0	0	0	0	0	6	4	2
APR 04...	0	2	10	0	10	7	0	10	40	0	40
27...	--	--	20	--	--	2	--	--	3	--	--
MAY 23...	--	--	20	--	--	1	--	--	8	--	--
JUN 28...	0	1	0	0	0	1	1	0	6	4	2
JUL 26...	--	--	0	--	--	2	--	--	13	--	--
AUG 22...	--	--	0	--	--	0	--	--	8	--	--
SEP 26...	4	0	0	0	10	2	0	2	5	2	3

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM SUSPENDED RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)
OCT											
26...	--	--	90	--	--	--	--	--	--	--	--
NOV											
25...	--	--	30	--	--	--	--	--	--	--	--
DEC											
22...	630	--	40	3	2	1	60	0	60	90	20
JAN											
24...	--	--	40	--	--	--	--	--	--	--	--
FEB											
22...	--	--	70	--	--	--	--	--	--	--	--
APR											
04...	15000	--	230	--	--	--	10	0	10	560	520
27...	1900	--	30	5	--	--	50	--	--	140	--
MAY											
23...	1700	--	40	5	--	--	40	--	--	150	--
JUN											
28...	2000	2000	20	--	--	3	40	0	50	200	180
JUL											
26...	1600	--	40	10	--	--	40	--	--	220	--
AUG											
22...	650	--	10	6	--	--	50	--	--	140	--
SEP											
26...	2300	2300	30	6	6	0	30	--	--	120	100

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, SUSPENDED RECOV. (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)
DEC										
22...	70	.0	.0	.0	1	0	1	5	2	3
JAN										
24...	--	--	--	--	--	--	--	--	--	--
FEB										
22...	--	--	--	--	--	--	--	--	--	--
APR										
04...	40	.0	.0	.0	4	4	0	16	13	3
27...	--	.0	--	--	5	--	--	6	--	--
MAY										
23...	--	.0	--	--	5	--	--	8	--	--
JUN										
28...	20	.0	.0	.0	3	3	0	12	9	3
JUL										
26...	--	.0	--	--	5	--	--	12	--	--
AUG										
22...	--	.0	--	--	7	--	--	6	--	--
SEP										
26...	20	.1	.1	.0	5	--	--	9	--	--

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
DEC										
22...	0	0	0	0	0	0	.1	10	0	10
JAN										
24...	--	--	--	--	--	--	--	--	--	--
FEB										
22...	--	--	--	--	--	--	--	--	--	--
APR										
04...	4	4	0	0	0	0	2.0	140	110	30
27...	0	--	--	0	--	--	--	20	--	--
MAY										
23...	0	--	--	0	--	--	--	30	--	--
JUN										
28...	0	0	0	0	0	0	.1	20	10	10
JUL										
26...	0	--	--	0	--	--	--	30	--	--
AUG										
22...	0	--	--	1	--	--	--	10	--	--
SEP										
26...	0	0	0	0	0	0	--	20	20	0

06340500 KNIFE RIVER AT HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT										
26...	--	--	--	--	--	--	--	8.1	3.0	--
NOV										
25...	--	--	--	--	--	--	--	7.4	.4	--
DEC										
22...	--	--	--	--	--	--	--	8.5	--	.00
JAN										
24...	--	--	--	--	--	--	--	8.0	.3	--
FEB										
22...	--	--	--	--	--	--	--	7.1	.3	--
APR										
04...	--	--	--	--	--	--	--	11	8.9	.00
27...	--	--	--	--	--	--	--	.8	3.1	--
MAY										
23...	--	--	--	--	--	--	--	3.9	2.0	--
JUN										
28...	--	--	--	--	--	--	--	9.1	2.2	.00
JUL										
26...	--	--	--	--	--	--	--	9.1	1.3	--
AUG										
22...	--	--	--	--	--	--	--	7.4	1.1	--
SEP										
26...	<6.6	1.4	11	2.1	9.7	2.1	.10	8.6	1.0	.00

DATE	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT											
26...	55	4.5	93	--	--	--	--	--	--	--	--
NOV											
25...	11	.74	75	--	--	--	--	--	--	--	--
DEC											
22...	29	2.5	91	--	--	--	--	--	--	--	--
JAN											
24...	15	.61	84	--	--	--	--	--	--	--	--
FEB											
22...	8	.30	86	--	--	--	--	--	--	--	--
APR											
04...	969	4890	78	--	--	--	--	--	--	--	--
27...	78	52	81	--	--	--	--	--	--	--	--
MAY											
23...	84	36	88	--	--	--	--	--	--	--	--
JUN											
19...	--	--	--	2	10	57	87	2	94	98	100
28...	95	28	91	--	--	--	--	--	--	--	--
JUL											
26...	64	13	96	--	--	--	--	--	--	--	--
AUG											
22...	32	2.9	91	--	--	--	--	--	--	--	--
SEP											
26...	68	12	98	--	--	--	--	--	--	--	--

06340500 KNIFE RIVER AT HAZEN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1300	1350	1700	1900	2000	1930	345	1400	1000	1630	1480	1480
2	1200	1300	1680	1830	1980	1930	425	1430	800	1550	1480	1500
3	1180	1350	1700	1830	2000	1930	320	1450	1050	1480	1500	1330
4	1230	1380	1730	2030	1980	1950	520	1480	1250	1380	1480	1580
5	1250	1380	1650	2030	1900	1980	580	1480	1380	1300	1430	1450
6	1200	1400	1800	2000	2000	1950	650	1480	1450	1030	1450	1480
7	1250	1450	1800	2030	2100	1950	675	1480	1450	1230	1500	1450
8	1450	1400	1830	2000	1950	1900	750	1500	1430	1250	1330	1450
9	1230	1400	1850	2000	1950	1900	850	1530	1450	1330	1400	1400
10	1230	1350	1880	2030	2100	1750	875	1630	1450	1400	1430	1430
11	1200	1400	1900	2030	2000	1800	925	1730	1480	1350	1500	1500
12	1200	1430	1850	2100	1980	1850	925	1900	1500	1400	1480	1500
13	1180	1430	1850	2100	1950	1380	950	1930	1480	1300	1500	1530
14	1100	1450	1800	2080	1900	1330	1000	1630	1500	1300	1480	---
15	1100	1450	1880	2050	1900	1430	1030	1730	1500	1350	1480	1400
16	1310	1480	1900	---	1880	1600	1050	1530	1480	1500	1480	1500
17	1190	1500	1900	2000	1900	1550	1100	1550	1500	1650	1430	565
18	1000	1430	1830	2180	1880	1630	1100	1600	1400	1600	1450	600
19	1230	1400	1850	2180	1980	1630	1130	1500	1330	1480	1430	700
20	1250	1530	1900	2150	2000	1330	1150	1500	1330	1480	1450	675
21	1230	---	1950	2150	2000	750	1200	1630	1430	1350	1450	725
22	1330	1550	1950	2100	1880	490	1230	1450	1480	1350	1450	900
23	1280	1580	2000	2080	1850	265	1250	1300	1480	1500	1430	925
24	1330	1630	2000	2050	1880	225	1250	1380	1480	1400	1450	975
25	1300	1550	2100	---	1900	300	1280	1330	1450	1380	1450	1030
26	1350	1630	2130	2100	1950	280	1300	1400	1450	1280	1430	---
27	1300	1600	2100	2100	1930	245	1330	1500	1480	1280	1450	1080
28	1330	1650	2080	2100	1900	240	1330	900	1500	1350	1450	1080
29	1300	1700	2030	2230	---	320	1350	850	1530	1450	1450	1130
30	1300	1680	1950	2100	---	340	1400	1000	1530	1450	1480	1150
31	1380	---	1900	2050	---	320	---	950	---	1480	1480	---
MEAN	1250	1480	1890	2060	1950	1240	976	1460	1400	1400	1460	1200

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	9.5	.0	.0	.0	.0	5.5	15.0	20.0	22.0	22.0	24.5
2	9.0	8.0	.0	.0	.0	.0	3.0	15.5	21.0	25.5	19.5	23.0
3	13.5	7.0	.0	.0	.0	.0	5.0	15.0	20.0	26.0	20.0	21.0
4	12.0	7.0	.0	.0	.0	.0	4.0	15.0	17.0	22.0	23.5	22.0
5	10.0	7.5	.0	.0	.0	.0	7.0	15.0	19.0	25.5	20.0	26.0
6	10.0	9.0	.0	.0	.0	.0	9.0	14.5	21.0	25.0	21.0	26.0
7	6.0	9.0	.0	.0	.0	.0	7.0	12.0	21.0	25.0	25.0	24.5
8	6.5	5.0	.0	.0	.0	.0	6.0	11.0	21.0	22.0	26.0	22.5
9	8.0	3.0	.0	.0	.0	.5	8.0	14.0	24.0	20.0	26.5	18.0
10	6.0	3.0	.0	.0	.0	.5	9.0	16.0	20.0	22.0	26.0	24.0
11	7.5	2.0	.0	.0	.0	1.5	9.0	15.5	19.0	25.0	26.5	20.0
12	10.5	2.0	.0	.0	.0	1.0	7.0	15.0	22.0	21.5	22.0	18.0
13	10.0	3.0	.0	.0	.0	.5	9.0	14.0	23.5	25.0	27.0	16.0
14	9.5	3.5	.0	.0	.0	.5	7.0	14.0	26.0	25.5	26.0	---
15	10.0	4.0	.0	.0	.0	.5	7.0	16.0	24.0	22.5	28.0	17.0
16	9.5	3.0	.0	---	.0	1.0	7.0	18.5	22.0	24.0	25.0	15.0
17	9.0	1.5	.0	.0	.0	.5	7.0	18.5	18.0	26.0	22.0	14.0
18	10.0	1.5	.0	.0	.0	1.0	10.0	19.0	24.0	26.0	20.0	13.0
19	10.0	1.5	.0	.0	.0	2.0	9.0	15.0	19.0	24.0	18.0	12.5
20	9.0	.0	.0	.0	.0	2.0	11.5	15.0	21.0	21.5	23.0	13.0
21	8.0	---	.0	.0	.0	4.0	10.5	17.0	23.0	21.0	21.5	14.0
22	7.5	.0	.0	.0	.0	2.0	9.0	20.0	22.0	22.0	19.0	15.0
23	9.0	.0	.0	.0	.0	1.5	9.0	21.0	25.0	26.0	21.5	12.0
24	8.0	.0	.0	.0	.0	1.0	11.0	22.5	22.0	24.0	24.0	15.0
25	11.5	.0	.0	---	.0	1.5	13.0	22.5	24.0	27.0	26.0	16.5
26	11.0	.0	.0	.0	.0	2.0	14.5	20.0	22.5	24.5	26.0	---
27	11.0	.0	.0	.0	.0	2.0	15.0	23.0	25.5	26.0	22.0	15.0
28	10.5	.0	.0	.0	.0	3.0	14.0	22.0	27.0	23.5	21.0	14.5
29	10.5	.0	.0	.0	---	6.5	12.0	21.0	22.5	20.0	22.0	12.0
30	11.0	.0	.0	.0	---	7.5	12.0	23.0	24.0	20.0	21.0	14.5
31	8.0	---	.0	.0	---	8.0	---	24.0	---	24.0	23.0	---
MEAN	9.5	3.0	.0	.0	.0	1.5	9.0	17.5	22.0	23.5	23.0	18.0

06340500 KNIFE RIVER AT HAZEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	APR 4,78	MAY 23,78	JUN 28,78	JUL 26,78	AUG 22,78
TIME	1530	1335	1225	1200	1100
TOTAL CELLS/ML	5200	42000	30000	44000	8800
DIVERSITY: DIVISION	0.6	1.2	1.3	1.2	1.1
.CLASS	0.6	1.2	1.3	1.2	1.1
..ORDER	0.6	1.4	1.6	1.9	1.9
...FAMILY	0.6	1.8	2.2	2.2	2.1
....GENUS	0.6	2.4	2.8	3.1	2.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	470	2	520	1	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	4000	10	5700#	19	670	2	370	4
....DICTYOSPHAERIUM	--	-	1800	4	2800	9	3600	8	83	1
....KIRCHNERIELLA	--	-	450	1	--	-	--	-	--	-
....OOCYSTIS	--	-	3100	7	--	-	520	1	130	2
....SELENASTRUM	--	-	--	-	--	-	370	1	--	-
....TETRAEDRON	290	6	--	-	230	1	--	-	*	0
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	3100	7	4700#	16	2700	6	--	-
....CRUCIGENIA	--	-	--	-	--	-	900	2	270	3
....SCENEDESMUS	--	-	4400	11	2000	7	1900	4	630	7
....TETRASTRUM	--	-	--	-	--	-	--	-	66	1
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	270	1	--	-	220	1	83	1
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	*	0	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	450	1	--	-	2200	5	*	0
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	*	0
...FRAGILARIACEAE										
....SYNEDRA	--	-	*	0	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	*	0	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE										
....NITZSCHIA	--	-	360	1	1500	5	1200	3	100	1
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	5800	13	--	-
....ANACYSTIS	--	-	22000#	53	10000#	33	15000#	35	3300#	38
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	1100	3	--	-	2200	5	--	-
....OSCILLATORIA	4600#	89	--	-	--	-	5800	13	3300#	37
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	1900	6	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	470	2	*	0	180	2
....PHACUS	--	-	270	1	--	-	--	-	*	0
....TRACHELOMONAS	290	6	*	0	--	-	--	-	50	1
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	--	-	50	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
      * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340500 KNIFE RIVER AT HAZEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass (µg/m²)		Chlorophyll a (µg/m²)	Chlorophyll b (µg/m²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Oct. 26	34	236	79	0.005	0.000	31,400	Polyethylene strip
May 23	26	2,130	1,020	.380	.000	2,921	Polyethylene strip
June 28	36	1,100	787	.600	.000	521	Polyethylene strip
Aug. 22	27	8,030	4,090	1.21	.000	3,256	Polyethylene strip

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C
Aug. 21, 1978			2400	7.6	19.5	0800	7.7	18.0
1600	8.8	22.0				0900	8.0	18.5
1700	8.8	22.0	Aug. 22, 1978			1000	8.1	19.0
1800	8.8	22.0	0100	7.6	19.0	1100	8.4	19.0
1900	8.5	21.0	0200	7.6	19.0	1200	8.6	19.5
2000	8.1	20.5	0300	7.5	19.0	1300	8.8	19.0
2100	8.0	20.0	0400	7.5	19.0	1400	8.7	19.0
2200	7.8	20.0	0500	7.5	18.5	1500	8.7	18.5
2300	7.7	19.5	0600	7.5	18.5	1600	8.7	19.0
			0700	7.5	18.5	1700	8.6	19.0

06340520 ANTELOPE CREEK ABOVE HAZEN, ND

LOCATION.--Lat 47°20'07", long 101°41'41", in SE¼SE¼NE¼ sec.36, T.145 N., R.87 W., Mercer County, Hydrologic Unit 10130201, on left bank about 100 ft (30 m) upstream from bridge on county road, 4.5 mi (7.2 km) northeast of Hazen, and 1.7 mi (2.7 km) upstream from Schramm Dam.

DRAINAGE AREA.--25.6 mi² (66.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,800 ft (549 m), from topographic map.

REMARKS.--Records fair except those for the winter period, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1400	--	--	[a]*8.95	2.728	July 12	--	104	2.95	[b]3.8	1.16
Mar. 26	--	*450	12.7	--	--						

No flow for many days.

a - Backwater from ice.
b - From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	.06	.07	.15	.00	.00	32	1.4	.21	.10	.03	.00
2	.30	.06	.07	.15	.00	.00	14	1.1	.21	.29	.02	.00
3	.21	.05	.06	.15	.00	.00	10	.80	.26	1.4	.02	.00
4	.14	.05	.05	.16	.00	.00	16	.68	.47	1.1	.01	.00
5	.11	.05	.04	.16	.00	.00	32	.59	.46	1.1	.01	.00
6	.09	.06	.02	.15	.00	.00	29	.55	.32	.52	.01	.00
7	.40	.06	.01	.12	.00	.02	17	.72	.28	.32	.01	.00
8	.76	.06	.01	.12	.00	.13	10	2.0	.18	.24	.01	.00
9	.61	.03	.01	.10	.00	.30	6.6	6.8	.15	.27	.01	.00
10	1.4	.03	.01	.10	.00	.40	5.7	5.2	.11	.26	.00	.00
11	2.2	.03	.04	.11	.00	1.2	6.0	3.0	.26	.22	.00	.00
12	1.6	.04	.10	.11	.00	1.0	5.5	2.2	.21	41	.00	.04
13	1.2	.05	.18	.10	.00	.80	5.4	1.8	.15	20	.00	.00
14	.77	.06	.20	.10	.00	.60	4.9	1.5	.13	8.2	.00	.00
15	.46	.07	.20	.10	.00	.40	4.6	1.3	.27	3.0	.00	.00
16	.34	.07	.20	.09	.00	.35	4.0	1.1	.25	1.2	.00	.00
17	.26	.06	.19	.08	.00	.30	3.9	.82	.26	.55	.00	.00
18	.20	.06	.18	.07	.00	.30	4.1	.61	.21	.24	.00	.00
19	.15	.06	.16	.06	.00	.40	3.8	.48	.16	.52	.00	.00
20	.11	.05	.15	.06	.00	1.5	3.3	.44	.14	.29	.00	.00
21	.10	.04	.10	.07	.00	150	2.6	.38	.11	.29	.00	.00
22	.09	.03	.10	.10	.00	270	2.3	.34	.08	.31	.00	.00
23	.09	.02	.12	.09	.00	200	2.4	.28	.06	.53	.00	.00
24	.09	.02	.13	.08	.00	110	2.4	.28	.06	.52	.00	.00
25	.08	.02	.15	.06	.00	210	2.2	.26	.05	.35	.00	.00
26	.08	.02	.16	.04	.00	300	2.0	.21	.04	.25	.00	.00
27	.07	.03	.17	.02	.00	190	1.8	.17	.04	.14	.00	.00
28	.07	.05	.17	.02	.00	128	1.8	.17	.03	.10	.00	.00
29	.07	.06	.16	.01	---	63	1.7	.14	.35	.07	.00	.00
30	.07	.07	.15	.00	---	82	1.6	.14	.43	.05	.00	.00
31	.07	---	.15	.00	---	73	---	.20	---	.04	.00	---
TOTAL	12.73	1.42	3.51	2.73	.00	1783.70	238.6	35.66	5.94	83.47	.13	.04
MEAN	.41	.047	.11	.088	.000	57.5	7.95	1.15	.20	2.69	.004	.001
MAX	2.2	.07	.20	.16	.00	300	32	6.8	.47	41	.03	.04
MIN	.07	.02	.01	.00	.00	.00	1.6	.14	.03	.04	.00	.00
AC-FT	25	2.8	7.0	5.4	.00	3540	473	71	12	166	.3	.08

WTR YR 1978 TOTAL 2167.93 MEAN 5.94 MAX 300 MIN .00 AC-FT 4300

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
19...	1145	.16	1630	8.2	20.0	6.5	9.6	85	K10	80	320
NOV											
10...	1000	.03	1750	8.3	4.0	1.5	13.1	98	K17	53	310
DEC											
13...	1030	.18	2330	7.5	3.0	.0	12.0	88	K37	93	510
JAN											
05...	1115	.18	2400	7.7	-12.0	.0	7.9	58	K3	K25	530
MAR											
08...	1230	.13	2350	7.9	11.0	.0	--	--	K10	50	350
24...	0805	75	--	--	-2.0	.5	--	--	--	--	--
29...	1615	56	--	--	19.0	7.5	--	--	--	--	--
APR											
07...	0945	20	530	8.0	.0	6.5	10.1	88	K250	6700	150
MAY											
09...	1130	7.2	1540	8.1	20.0	10.0	11.8	112	--	K16000	400
JUN											
15...	1220	.25	1740	8.5	25.0	23.0	7.8	96	900	780	330
28...	1150	.03	--	--	28.0	24.5	--	--	--	--	--
JUL											
25...	0900	.38	1045	8.1	25.0	23.0	2.0	24	220	450	250

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
19...	0	57	42	240	61	5.9	12	477	--	390	4.8
NOV											
10...	0	88	23	260	63	6.4	14	563	--	460	4.5
DEC											
13...	0	80	76	380	61	7.3	13	803	0	660	41
JAN											
05...	0	100	69	400	61	7.5	12	776	0	640	25
MAR											
08...	0	72	41	390	70	9.1	7.9	861	0	710	17
24...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
07...	6	33	17	53	41	1.9	8.5	176	0	140	2.8
MAY											
09...	0	77	51	250	56	5.4	16	500	0	410	6.4
JUN											
15...	0	43	54	320	67	7.7	9.9	549	10	470	2.8
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
25...	0	44	34	150	55	4.1	12	364	0	300	4.6

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06340520 ANTELOPE CREEK ABOVE HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
19...	460	13	.3	13	1090	1070	1.46	.46	.01	.01	1.2
NOV											
10...	500	13	.1	12	1240	1190	1.62	.10	.19	.07	1.4
DEC											
13...	560	12	.2	15	1510	1530	2.08	.74	.26	.77	.53
JAN											
05...	680	15	.3	19	1700	1680	2.28	.82	.52	.78	.42
MAR											
08...	470	7.9	.3	17	1440	1430	1.94	.50	.86	.40	.40
24...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
07...	120	3.2	.1	10	345	332	.45	17.9	.37	.13	1.2
MAY											
09...	500	11	.1	3.5	1170	1160	1.58	22.6	.08	.05	1.5
JUN											
15...	510	8.8	.2	2.2	1260	1230	1.67	.83	.04	.00	1.1
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
25...	260	6.2	.1	2.6	710	689	.94	.71	.06	.01	1.1

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)
OCT											
19...	1.2	1.2	5.4	.16	.12	--	--	--	--	--	--
NOV											
10...	1.5	1.7	7.5	.17	.07	10	--	2	--	--	400
DEC											
13...	1.3	1.6	6.9	.14	.11	--	--	--	--	--	--
JAN											
05...	1.2	1.7	7.6	.11	.09	--	--	--	--	--	--
MAR											
08...	.80	1.7	7.3	.26	.17	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
07...	1.3	1.7	7.4	.22	.14	0	2	2	10	100	100
MAY											
09...	1.5	1.6	7.0	.29	.22	--	--	--	--	--	--
JUN											
15...	1.1	1.1	5.0	.10	.07	10	5	4	8	200	300
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
25...	1.1	1.2	5.1	.22	.19	--	--	--	--	--	--

06340520 ANTELOPE CREEK ABOVE HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT										
19...	--	--	--	--	280	--	--	--	--	--
NOV										
10...	--	--	0	--	270	--	1	--	--	4
DEC										
13...	--	--	--	--	290	--	--	--	--	--
JAN										
05...	--	--	--	--	250	--	--	--	--	--
MAR										
08...	--	--	--	--	280	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
APR										
07...	1100	0	10	0	80	1	2	4	0	0
MAY										
09...	--	--	--	--	210	--	--	--	--	--
JUN										
15...	75	0	10	0	270	--	0	0	0	0
28...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	--	--	--	--	220	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)
OCT												
19...	--	--	--	--	--	--	--	140	--	--	--	--
NOV												
10...	--	--	0	--	--	0	--	70	3	--	--	60
DEC												
13...	--	--	--	--	--	--	--	110	--	--	--	--
JAN												
05...	--	--	--	--	--	--	--	80	--	--	--	--
MAR												
08...	--	--	--	--	--	--	--	30	--	--	--	--
APR												
07...	30	0	1	15	4	4	4	90	--	50	10	10
MAY												
09...	--	--	--	--	--	--	--	40	--	--	--	--
JUN												
15...	0	0	0	8	7	5	6	80	--	10	70	70
JUL												
25...	--	--	--	--	--	--	--	110	--	--	--	--

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)
OCT												
19...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
10...	--	10	--	--	.0	--	--	--	1	--	2	--
DEC												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
05...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
08...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	40	20	1600	.0	.0	.04	0	0	0	3	2	33
MAY												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
15...	160	110	660	.0	.0	.05	5	0	3	4	0	10
JUL												
25...	--	--	--	--	--	--	--	--	--	--	--	--

06340520 ANTELOPE CREEK ABOVE HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G) (01148)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	1	--	1.6	--	10	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 05...	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 07...	0	0	1	2.0	10	10	120	<4.4	.4	15	1.2
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 15...	1	1	0	.0	20	10	68	--	--	--	--
JUL 25...	--	--	--	--	--	--	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAY 09...	41	52	59	68	78	86	100
JUN 15...	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--
JUL 25...	--	--	--	--	--	--	--

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 19...	13	1.4	14	.01	--	--	--
NOV 10...	13	2.0	6	.00	--	--	--
DEC 13...	12	.2	32	.02	--	--	--
JAN 05...	11	.5	28	.01	--	--	--
MAR 08...	8.7	.3	29	.01	--	--	--
24...	--	--	34	6.9	--	--	--
29...	--	--	49	7.4	--	--	--
APR 07...	9.2	1.4	16	.86	--	--	--
MAY 09...	17	.9	27	.52	10	15	28
JUN 15...	18	.8	22	.01	--	--	--
28...	--	--	11	.00	--	--	--
JUL 25...	13	.5	6	.01	--	--	--

06340520 ANTELOPE CREEK ABOVE HAZEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	OCT 19,77		NOV 10,77		DEC 13,77		JAN 5,78		MAR 8,78	
TIME	1145		1000		1030		1115		1230	
TOTAL CELLS/ML	12000		18000		7		110		140	
DIVERSITY: DIVISION	1.3		1.8		0.0		1.4		1.0	
.CLASS	1.8		1.8		0.0		1.4		1.0	
..ORDER	2.5		2.0		0.0		1.7		1.3	
...FAMILY	2.5		2.0		0.0		2.2		1.9	
....GENUS	2.9		2.3		0.0		2.2		2.4	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	2500#	21	670	4	--	-	31#	29	9	7
....KIRCHNERIELLA	870	7	1500	8	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	--	-	31#	29	27#	20
....TETRASTRUM	--	-	--	-	--	-	--	-	37#	27
..TETRASPORALES										
...COCCOMYXACEAE										
....DISPORA	440	4	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	2500#	21	340	2	--	-	--	-	9	7
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	1900#	15	6600#	36	--	-	16	14	--	-
....SKELETONEMA	550	4	--	-	--	-	--	-	--	-
..PENNALES										
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	*	0	--	-
....NAVICULA	--	-	--	-	--	-	16	14	37#	27
...NITZSCHIACEAE										
....NITZSCHIA	110	1	500	3	7#	100	--	-	18	13
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	2500#	21	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	110	1	840	5	--	-	--	-	--	-
....PHACUS	110	1	--	-	--	-	--	-	--	-
....TRACHELOMONAS	440	4	5900#	33	--	-	16	14	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE										
....PERIDINIUM	220	2	1700	9	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340520 ANTELOPE CREEK ABOVE HAZEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	APR 7,78		MAY 9,78		JUN 15,78		JUL 25,78	
TIME	0945		1130		1220		0900	
TOTAL CELLS/ML	700		13000		860		3800	
DIVERSITY: DIVISION	0.8		1.6		1.7		1.8	
.CLASS	0.8		1.6		1.7		1.8	
..ORDER	0.9		2.3		2.2		2.4	
...FAMILY	0.9		2.5		2.4		3.0	
....GENUS	0.9		2.7		2.4		3.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	23	1
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	180	6
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	15	2	160	5
....KIRCHNERIELLA	14	2	280	2	--	-	--	-
....OOCYSTIS	--	-	370	3	--	-	--	-
....SELENASTRUM	--	-	1300	10	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	190	1	290#	34	270	9
....TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...COCCOMYXACEAE								
....DISPORA	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	460#	15
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	59	7	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	68	10	2000	15	220#	25	980#	33
....SKELETONEMA	--	-	--	-	--	-	--	-
..PENNALES								
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	15	2	--	-
....SYNEDRA	--	-	93	1	--	-	92	3
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	93	1	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	41	6	740	6	29	3	69	2
...NITZSCHIACEAE								
....NITZSCHIA	--	-	930	7	15	2	92	3
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...CHROMULINACEAE								
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	5200#	40	180#	20	370	12
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	570#	82	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	1700	13	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	44	5	23	1
....PHACUS	--	-	93	1	--	-	23	1
....TRACHELOMONAS	--	-	190	1	--	-	210	7
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	23	1
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 09...	32	23.8	.000	16.6	14.0
JUL 25...	42	1.97	.750	2.99	2.20

06340524 ANTELOPE CREEK TRIBUTARY NO. 5 NEAR ZAP, ND

LOCATION.--Lat 47°23'10", long 101°50'04", in NE¼NE¼SE¼ sec.20, T.145 N., R.88 W., Mercer County, Hydrologic Unit 10130301, on left bank upstream from culvert on county highway, and 5.5 mi (8.9 km) north of Zap.

DRAINAGE AREA.--4.45 mi² (11.53 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder.

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 125 ft³/s (3.54 m³/s) Mar. 26, gage height, 5.65 ft (1.722 m), only peak above base of 10 ft³/s (0.28 m³/s); maximum gage height, 6.79 ft (2.070 m) Mar. 23, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	1.8	.02	.04	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.48	.01	.01	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.82	.01	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	2.0	.01	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	1.7	.01	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	1.6	.01	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.70	.03	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.31	.23	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.11	.16	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.04	.06	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.02	.07	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.07	.13	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.03	.28	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.03	.32	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.01	.09	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.01	.05	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.21	.02	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.51	.01	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.10	.02	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	10	.01	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	20	.03	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	34	.03	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	43	.02	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	61	.01	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	51	.01	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	16	.02	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	15	.02	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	12	.02	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	5.6	---	.01	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	267.70	10.81	1.53	.05	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	8.64	.36	.049	.002	.000	.000	.000
MAX	.00	.00	.00	.00	.00	61	2.0	.32	.04	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	531	21	3.0	.10	.00	.00	.00

WTR YR 1978 TOTAL 280.09 MEAN .77 MAX 61 MIN .00 AC-FT 556

06340524 ANTELOPE CREEK TRIBUTARY NO. 5 NEAR ZAP, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	TURBIDITY (JTU) (00070)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
JUN												
15...	1130	--	--	--	--	--	--	--	--	--	--	--
15...	1230	2.4	--	--	--	--	--	--	--	--	--	--
15...	1400	2.3	205	6.8	21.0	550	190	66	7	15	6.9	3.1
16...	0915	--	--	--	17.0	--	--	--	--	--	--	--
16...	1130	--	--	--	18.0	--	--	--	--	--	--	--

DATE	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	8	.2	11	72	0	59	16	17	2.0	.1	11

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	134	104	.18	.85	.30	.06	.08	.87	.93	.60	200

DATE	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	3	0	0	100	0	0	0	11	220	5	2

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
JUN											
15...	--	--	--	--	--	--	--	--	--	278	--
15...	--	--	--	--	--	--	--	--	--	264	1.7
15...	10	.0	0	4	1	80	3.0	10	21	273	1.7
16...	--	--	--	--	--	--	--	--	--	211	--
16...	--	--	--	--	--	--	--	--	--	182	--

06340524 ANTELOPE CREEK TRIBUTARY NO. 5 NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
MAR											
23...	1345	18	100	--	1.0	--	--	--	--	--	--
23...	1400	--	98	7.2	10.0	27	0	5.9	2.9	.6	3
24...	1010	--	--	--	--	--	--	--	--	--	--
25...	1425	45	101	--	2.5	--	--	--	--	--	--
26...	1445	72	--	--	.0	--	--	--	--	--	--
27...	1315	41	75	--	3.0	--	--	--	--	--	--
28...	1220	7.6	83	--	3.0	--	--	--	--	--	--
29...	1350	7.0	120	--	10.0	--	--	--	--	--	--
29...	1355	7.0	120	--	10.0	--	--	--	--	--	--
30...	1215	--	124	7.2	10.0	51	4	12	5.1	1.3	5
30...	1229	4.3	125	--	11.5	--	--	--	--	--	--
30...	1235	7.3	125	--	11.5	--	--	--	--	--	--
APR											
04...	1105	1.8	270	--	7.0	--	--	--	--	--	--
04...	1120	1.8	270	--	7.0	--	--	--	--	--	--
19...	1350	.14	440	--	10.5	--	--	--	--	--	--
MAY											
02...	0805	.01	670	--	8.0	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
MAR											
23...	--	--	--	--	--	--	--	--	--	--	--
23...	.1	9.5	42	0	34	4.2	7.5	1.9	.0	6.1	55
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
30...	.1	6.2	57	0	47	5.8	12	1.3	.0	7.8	74
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR										
23...	--	--	--	--	--	--	--	--	74	3.6
23...	.07	2.5	40	80	140	30	1	80	--	--
24...	--	--	--	--	--	--	--	--	36	--
25...	--	--	--	--	--	--	--	--	59	6.8
26...	--	--	--	--	--	--	--	--	164	32
27...	--	--	--	--	--	--	--	--	53	5.9
28...	--	--	--	--	--	--	--	--	32	.66
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	16	.30
30...	.10	.70	0	50	110	0	1	90	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	16	.32
APR										
04...	--	--	--	--	--	--	--	--	10	.05
04...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
MAY										
02...	--	--	--	--	--	--	--	--	4	.00

06340528 ANTELOPE CREEK TRIBUTARY NO. 4 NEAR ZAP, ND

LOCATION.--Lat 47°21'21", long 101°51'16", in the NW¼NW¼NE¼ sec.26, T 145 N., R.88 W., Mercer County, Hydrologic Unit 10130201, on left bank upstream from culvert, and 6.0 mi (9.7 km) northeast of Zap.

DRAINAGE AREA.--8.46 mi² (21.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair.

EXTREMES FOR 1977 WATER YEAR.--Maximum discharge, 36.0 ft³/s (1.02 m³/s) June 15, gage height, 3.85 ft (1.173 m), only peak above base of 10 ft³/s (0.28 m³/s); no flow for several months.

EXTREMES FOR 1978 WATER YEAR.--Maximum discharge, 122 ft³/s (3.46 m³/s) Mar. 26, gage height, 6.00 ft (1.829 m), only peak above base of 10 ft³/s (0.28 m³/s); maximum gage height, 7.07 ft (2.155 m) Mar. 24, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
2	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00
3	.00	.00	.00	.00	.00	.00	.03	.00	.00	.01	.00	.00
4	.00	.00	.00	.00	.00	.00	.05	.00	.00	.01	.00	.00
5	.00	.00	.00	.00	.00	.00	.07	.00	.00	.01	.00	.00
6	.00	.00	.00	.00	.00	.00	.14	.00	.00	.01	.00	.00
7	.00	.00	.00	.00	.00	.00	.13	.00	.00	.01	.00	.00
8	.00	.00	.00	.00	.00	.00	.11	.00	.00	.01	.00	.00
9	.00	.00	.00	.00	.00	.00	.10	.00	.00	.01	.00	.00
10	.00	.00	.00	.00	.00	.00	.09	.00	.00	.01	.00	.00
11	.00	.00	.00	.00	.00	.00	.06	.00	.00	.01	.00	.00
12	.00	.00	.00	.00	.00	.00	.04	.00	.00	.01	.00	.00
13	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.02	.00	4.1	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.02	.00	3.1	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.02	.00	.48	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.01	.00	.16	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.01	.00	.07	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.02	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.01	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.98	.00	8.21	.12	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.033	.000	.27	.004	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.14	.00	4.1	.01	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	1.9	.00	16	.2	.00	.00

WTR YR 1977 TOTAL 9.31 MEAN .026 MAX 4.1 MIN .00 AC-FT 18

06340528 ANTELOPE CREEK TRIBUTARY NO. 4 NEAR ZAP, ND--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	5.4	.25	.14	.01	.00	.00
2	.00	.00	.00	.00	.00	.00	2.6	.21	.06	.01	.00	.00
3	.00	.00	.00	.00	.00	.00	3.3	.18	.02	.01	.00	.00
4	.00	.00	.00	.00	.00	.00	4.2	.16	.01	.02	.00	.00
5	.00	.00	.00	.00	.00	.00	6.2	.16	.01	.01	.00	.00
6	.00	.00	.00	.00	.00	.00	4.9	.15	.01	.01	.00	.00
7	.00	.00	.00	.00	.00	.00	2.9	.36	.01	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	1.9	1.6	.01	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	1.6	1.2	.01	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	1.8	.63	.01	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	1.6	.44	.01	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	1.7	.67	.01	.00	.00	.12
13	.00	.00	.00	.00	.00	.00	1.3	.78	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	1.1	.54	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.97	.40	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	1.1	.27	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	1.3	.17	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	1.6	.12	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	1.0	.11	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.65	.14	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.57	.09	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	3.0	.56	.06	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.50	.89	.03	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	3.0	.63	.02	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	50	.56	.01	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	80	.48	.01	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	74	.43	.01	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	37	.46	.01	.00	.00	.00	.00
29	.00	.00	.00	.00	---	29	.41	.01	.20	.00	.00	.00
30	.00	.00	.00	.00	---	30	.33	.01	.16	.00	.00	.00
31	.00	---	.00	.00	---	17	---	.01	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	323.50	52.44	8.81	.67	.07	.00	.12
MEAN	.000	.000	.000	.000	.000	10.4	1.75	.28	.022	.002	.000	.004
MAX	.00	.00	.00	.00	.00	80	6.2	1.6	.20	.02	.00	.12
MIN	.00	.00	.00	.00	.00	.00	.33	.01	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	642	104	17	1.3	.1	.00	.2

CAL YR 1977 TOTAL 9.73 MEAN .027 MAX 4.6 MIN .00 AC-FT 19
WTR YR 1978 TOTAL 385.61 MEAN 1.06 MAX 80 MIN .00 AC-FT 765

06340528 ANTELOPE CREEK TRIBUTARY NO. 4 NEAR ZAP, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (JTU) (00070)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
JUN												
15...	1055	1.9	890	7.6	20.5	--	--	--	--	--	--	--
15...	1100	1.7	890	7.5	20.5	70	85	330	210	66	40	66
15...	1200	--	--	--	--	--	--	--	--	--	--	--
15...	1310	1.2	--	--	20.5	--	--	--	--	--	--	--
15...	1340	--	--	--	20.5	--	--	--	--	--	--	--
15...	1435	--	--	--	21.0	--	--	--	--	--	--	--
16...	0850	--	--	--	15.5	--	--	--	--	--	--	--
16...	1115	--	--	--	17.0	--	--	--	--	--	--	--
16...	1355	--	--	--	19.5	--	--	--	--	--	--	--

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	30	1.6	6.1	150	0	120	6.6	330	5.0	.2	8.0

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	626	595	.85	2.89	.21	.01	.01	.40	.41	.10	20

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	1	100	5	120	1	10	0	3	50	3	30

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
JUN											
15...	--	--	--	--	--	--	--	--	--	230	1.2
15...	20	.0	0	2	0	560	.4	0	9.5	--	--
15...	--	--	--	--	--	--	--	--	--	158	--
15...	--	--	--	--	--	--	--	--	--	134	.43
15...	--	--	--	--	--	--	--	--	--	126	--
15...	--	--	--	--	--	--	--	--	--	122	--
16...	--	--	--	--	--	--	--	--	--	191	--
16...	--	--	--	--	--	--	--	--	--	167	--
16...	--	--	--	--	--	--	--	--	--	180	--

06340528 ANTELOPE CREEK TRIBUTARY NO. 4 NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
MAR											
22...	1555	.50	240	--	1.0	--	--	--	--	--	--
22...	1630	6.5	--	--	--	--	--	--	--	--	--
22...	1700	--	240	7.1	1.0	84	24	19	8.9	11	20
23...	0745	--	--	--	.0	--	--	--	--	--	--
23...	1015	.71	--	--	.0	--	--	--	--	--	--
23...	1455	--	--	--	--	--	--	--	--	--	--
24...	0930	--	--	--	--	--	--	--	--	--	--
24...	1150	2.4	--	--	.0	--	--	--	--	--	--
25...	1225	35	208	--	2.0	--	--	--	--	--	--
25...	1445	--	--	--	--	--	--	--	--	--	--
26...	1230	83	--	--	.5	--	--	--	--	--	--
27...	1545	140	118	--	1.0	--	--	--	--	--	--
28...	1020	--	--	--	--	--	--	--	--	--	--
28...	1315	25	159	--	1.0	--	--	--	--	--	--
29...	1225	16	280	--	1.5	--	--	--	--	--	--
29...	1230	16	280	--	1.5	--	--	--	--	--	--
30...	1100	--	255	7.4	3.0	99	32	23	10	11	18
30...	1140	16	267	--	3.0	--	--	--	--	--	--
30...	1145	16	267	--	3.0	--	--	--	--	--	--
APR											
04...	1030	3.3	800	--	4.0	--	--	--	--	--	--
04...	1035	3.3	600	--	4.0	--	--	--	--	--	--
05...	1200	--	--	--	--	--	--	--	--	--	--
19...	1250	1.1	1095	--	6.0	--	--	--	--	--	--
MAY											
02...	0930	.20	--	--	11.5	--	--	--	--	--	--
JUN											
29...	1625	--	--	--	16.0	--	--	--	--	--	--
29...	1715	--	--	--	--	--	--	--	--	--	--
29...	1740	--	--	--	17.5	--	--	--	--	--	--
SEP											
12...	1045	.12	900	7.3	15.5	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
MAR											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	.5	8.7	74	0	61	9.4	53	2.3	.0	5.7	146
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
30...	.5	6.2	81	0	66	5.2	56	1.8	.1	7.6	156
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
SEP											
12...	--	--	--	--	--	--	--	--	--	--	--

06340528 ANTELOPE CREEK TRIBUTARY NO. 4 NEAR ZAP, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR										
22...	--	--	--	--	--	--	--	--	21	.02
22...	--	--	--	--	--	--	--	--	26	.46
22...	.20	1.3	0	70	110	50	1	180	--	--
23...	--	--	--	--	--	--	--	--	9	--
23...	--	--	--	--	--	--	--	--	11	.02
23...	--	--	--	--	--	--	--	--	26	--
24...	--	--	--	--	--	--	--	--	10	--
24...	--	--	--	--	--	--	--	--	9	.06
25...	--	--	--	--	--	--	--	--	50	4.7
25...	--	--	--	--	--	--	--	--	100	--
26...	--	--	--	--	--	--	--	--	84	19
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	222	--
28...	--	--	--	--	--	--	--	--	76	5.1
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	99	4.3
30...	.21	.85	20	60	330	50	1	180	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	68	2.9
APR										
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	7	.06
05...	--	--	--	--	--	--	--	--	6	--
19...	--	--	--	--	--	--	--	--	--	--
MAY										
02...	--	--	--	--	--	--	--	--	9	.00
JUN										
29...	--	--	--	--	--	--	--	--	38	--
29...	--	--	--	--	--	--	--	--	65	--
29...	--	--	--	--	--	--	--	--	40	--
SEP										
12...	--	--	--	--	--	--	--	--	37	.01

06340536 ANTELOPE CREEK TRIBUTARY NO. 2 NEAR BEULAH, ND

LOCATION.--Lat 47°19'45", long 101°47'06", in SW¼SE¼SE¼ sec.32, T.145 N., R.87 W., Mercer County, Hydrologic Unit 10130301, on left bank 30 ft (9.14 m) downstream from county highway box culvert, and 4 mi (6.4 km) north of Beulah.

DRAINAGE AREA.--28.3 mi² (73.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Some channelization and regulation one mile upstream due to mining efforts.

EXTREMES FOR 1977 WATER YEAR.--Maximum discharge, 37.0 ft³/s (1.05 m³/s) June 14, gage height, 5.30 ft (1.615 m); only peak above base of 25 ft³/s (0.71 m³/s); no flow for several months.

EXTREMES FOR 1978 WATER YEAR.--Maximum discharge, 296 ft³/s (8.38 m³/s) Mar. 26, gage height, 6.78 ft (2.067 m); only peak above base of 25 ft³/s (0.71 m³/s); maximum gage height, 7.68 ft (2.341 m) Mar. 22, backwater from ice; no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	4.8	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	5.9	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	6.2	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.60	16.97	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.019	.57	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.60	6.2	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	1.2	34	.00	.00	.00

WTR YR 1977 TOTAL 17.57 MEAN .048 MAX 6.2 MIN .00 AC-FT 35

06340536 ANTELOPE CREEK TRIBUTARY NO. 2 NEAR BEULAH, ND--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	8.0	.02	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	1.8	.01	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	3.7	.01	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	2.7	.01	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	2.3	.00	.00	.04	.00	.00
6	.00	.00	.00	.00	.00	.00	2.2	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.65	.01	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.19	.10	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.16	.12	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.14	.08	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.11	.04	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.26	.12	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.24	.06	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.15	.02	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.41	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	5.0	.06	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	90	.06	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	120	.13	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	100	.09	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	148	.04	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	192	.03	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	197	.02	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	112	.02	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	50	.02	.00	.24	.00	.00	.00
30	.00	.00	.00	.00	---	57	.02	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	40	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	1111.00	24.31	.60	.24	.04	.00	.00
MEAN	.000	.000	.000	.000	.000	35.8	.81	.019	.008	.001	.000	.000
MAX	.00	.00	.00	.00	.00	197	8.0	.12	.24	.04	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	2200	48	1.2	.5	.08	.00	.00

CAL YR 1977 TOTAL 17.57 MEAN .048 MAX 6.2 MIN .00 AC-FT 35
WTR YR 1978 TOTAL 1136.19 MEAN 3.11 MAX 197 MIN .00 AC-FT 2250

06340536 ANTELOPE CREEK TRIBUTARY NO. 2 NEAR BEULAH, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (JTU) (00070)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR												
18...	1730	313	195	7.5	14.0	--	--	59	13	14	5.9	11
JUN												
15...	1030	2.0	--	--	--	--	--	--	--	--	--	--
15...	1525	.49	--	--	20.0	--	--	--	--	--	--	--
16...	0855	--	--	--	15.5	--	--	--	--	--	--	--
16...	0945	5.3	180	7.5	16.0	720	480	64	2	17	5.2	7.4
16...	1045	5.4	180	7.5	16.5	--	--	--	--	--	--	--
16...	1340	--	--	--	19.0	--	--	--	--	--	--	--

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
APR											
18...	27	.6	6.9	--	--	46	--	36	1.4	.1	5.6
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	17	.4	11	75	0	62	3.8	17	3.1	.1	6.3
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)
APR											
18...	--	107	.15	90.4	--	--	--	--	.65	--	--
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	136	107	.19	1.97	.43	.34	.44	.00	.34	.37	260
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
APR											
18...	--	--	--	50	--	--	--	--	250	--	--
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	2	0	0	120	1	10	0	18	220	5	0
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--

06340536 ANTELOPE CREEK TRIBUTARY NO. 2 NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
APR											
18...	20	--	<10	--	--	110	--	--	--	--	--
JUN											
15...	--	--	--	--	--	--	--	--	--	1180	6.4
15...	--	--	--	--	--	--	--	--	--	914	1.2
16...	--	--	--	--	--	--	--	--	--	191	--
16...	100	.0	0	7	1	100	.0	10	24	--	--
16...	--	--	--	--	--	--	--	--	--	748	11
16...	--	--	--	--	--	--	--	--	--	730	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
MAR											
21...	1555	--	--	--	.5	--	--	--	--	--	--
22...	1345	--	140	7.4	.2	52	0	7.5	3.3	5.9	22
22...	1350	78	140	--	.5	--	--	--	--	--	--
23...	0940	--	--	--	.0	--	--	--	--	--	--
23...	1400	--	98	7.2	10.0	27	0	5.9	2.9	.6	3
23...	1535	--	--	--	--	--	--	--	--	--	--
24...	0855	--	--	--	--	--	--	--	--	--	--
24...	1300	--	--	--	--	--	--	--	--	--	--
25...	1500	--	--	--	--	--	--	--	--	--	--
26...	1250	160	--	--	--	--	--	--	--	--	--
27...	1630	191	135	--	9.0	--	--	--	--	--	--
27...	1705	190	135	--	9.0	--	--	--	--	--	--
28...	1430	74	141	--	7.0	--	--	--	--	--	--
28...	1445	74	141	--	7.0	--	--	--	--	--	--
29...	1110	36	200	--	5.0	--	--	--	--	--	--
30...	1030	41	190	--	5.0	--	--	--	--	--	--
30...	1345	--	200	7.7	9.3	72	12	17	7.1	8.8	19
APR											
04...	1155	1.4	--	--	--	--	--	--	--	--	--
19...	1245	.09	920	--	5.0	--	--	--	--	--	--

06340536 ANTELOPE CREEK TRIBUTARY NO. 2 NEAR BEULAH, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
MAR											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	.5	10	55	0	45	3.5	15	2.5	.0	4.8	76
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	.1	9.5	42	0	34	4.2	7.5	1.9	.0	6.1	55
23...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	.5	7.4	73	0	60	2.3	34	1.8	.0	7.5	120
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR										
21...	--	--	--	--	--	--	--	--	210	--
22...	.10	2.4	30	90	120	20	1	90	--	--
22...	--	--	--	--	--	--	--	--	524	110
23...	--	--	--	--	--	--	--	--	44	--
23...	.07	2.5	40	80	140	30	1	80	--	--
23...	--	--	--	--	--	--	--	--	166	--
24...	--	--	--	--	--	--	--	--	32	--
24...	--	--	--	--	--	--	--	--	135	--
25...	--	--	--	--	--	--	--	--	777	--
26...	--	--	--	--	--	--	--	--	276	119
27...	--	--	--	--	--	--	--	--	292	151
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	139	28
28...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	54	5.2
30...	--	--	--	--	--	--	--	--	--	--
30...	.16	.89	0	60	100	20	1	140	--	--
APR										
04...	--	--	--	--	--	--	--	--	109	.41
19...	--	--	--	--	--	--	--	--	--	--

06340540 ANTELOPE CREEK TRIBUTARY NEAR HAZEN, ND

LOCATION.--Lat 47°19'00", long 101°41'27", in NE¼SE¼SW¼ sec.3, T.144 N., R.87 W., Mercer County, Hydrologic Unit 10130201, on right bank 50 ft (15 m) upstream from bridge on county road, 600 ft (183 m) upstream from mouth, and 3.4 mi (5.5 km) northwest of Hazen.

DRAINAGE AREA.--37.7 mi² (97.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,780 ft (543 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15 ft³/s (0.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1845	--	--	*9.99	3.045	Apr. 4	0315	16	0.45	3.31	1.009
Mar. 26	--	*350	9.91	--	--						

No flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	22	.90	.16	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	7.1	.80	.13	.06	.00	.00
3	.00	.00	.00	.00	.00	.00	7.2	.70	.16	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	12	.60	.13	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	7.9	.50	.06	.02	.00	.00
6	.00	.00	.00	.00	.00	.00	7.3	.40	.03	.00	.00	.00
7	.34	.00	.00	.00	.00	.00	3.8	1.2	.00	.00	.00	.00
8	.62	.00	.00	.00	.00	.00	2.2	2.6	.00	.00	.00	.00
9	.14	.00	.00	.00	.00	.00	1.8	3.0	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	1.5	2.5	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	1.6	1.5	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	1.6	1.0	.07	.00	.00	.12
13	.00	.00	.00	.00	.00	.00	1.6	.80	.03	1.4	.00	.00
14	.00	.00	.00	.00	.00	.00	1.7	.60	.00	1.6	.00	.00
15	.00	.00	.00	.00	.00	.00	1.7	.50	.00	.60	.00	.00
16	.00	.00	.00	.00	.00	.00	1.6	.40	.00	.01	.00	.00
17	.00	.00	.00	.00	.00	.00	1.5	.30	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.50	1.5	.28	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	10	1.4	.26	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	40	1.4	.24	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	100	1.4	.22	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	220	1.3	.20	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	100	1.3	.18	.00	.03	.00	.00
24	.00	.00	.00	.00	.00	50	1.2	.16	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	70	1.2	.14	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	250	1.1	.12	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	220	1.1	.10	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	184	1.0	.08	.00	.00	.00	.00
29	.00	.00	.00	.00	---	54	1.0	.06	.00	.00	.00	.00
30	.00	.00	.00	.00	---	64	1.0	.05	.00	.00	.00	.00
31	.00	---	.00	.00	---	48	---	.11	---	.00	.00	---
TOTAL	1.10	.00	.00	.00	.00	1410.50	100.0	20.50	.77	3.72	.00	.12
MEAN	.035	.000	.000	.000	.000	45.5	3.33	.66	.026	.12	.000	.004
MAX	.62	.00	.00	.00	.00	250	22	3.0	.16	1.6	.00	.12
MIN	.00	.00	.00	.00	.00	.00	1.0	.05	.00	.00	.00	.00
AC-FT	2.2	.00	.00	.00	.00	2800	198	41	1.5	7.4	.00	.2

WTR YR 1978 TOTAL 1536.71 MEAN 4.21 MAX 250 MIN .00 AC-FT 3050

06340540 ANTELOPE CREEK TRIBUTARY NEAR HAZEN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR										
24...	1500	50	194	7.8	8.0	.5	10.9	81	87	30000
29...	1415	42	--	--	21.0	10.0	--	--	--	--
APR										
06...	1645	8.4	--	--	--	13.0	--	--	--	--
21...	0830	1.4	1390	8.6	9.0	7.0	9.7	84	<1	160
MAY										
17...	0835	.32	1780	8.2	19.5	19.0	3.9	45	230	59

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)
MAR										
24...	53	0	12	5.5	14	32	.8	8.4	67	0
29...	--	--	--	--	--	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
21...	350	0	71	43	190	53	4.4	8.3	416	11
MAY										
17...	360	0	65	48	300	64	6.9	10	678	0

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
MAR										
24...	55	1.7	32	1.9	.0	5.6	113	113	.15	15.3
29...	--	--	--	--	--	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
21...	360	1.8	360	3.1	.2	7.4	949	899	1.22	3.4
MAY										
17...	560	6.8	460	2.8	.3	5.5	1240	1230	1.67	1.0

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
MAR										
24...	.70	.58	1.5	2.1	2.8	12	.49	.27	30	2
29...	--	--	--	--	--	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
21...	.02	.01	.74	.75	.77	3.4	.09	.06	--	--
MAY										
17...	.00	.04	.96	1.0	1.0	4.4	.30	.28	--	--

06340540 ANTELOPE CREEK TRIBUTARY NEAR HAZEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)
MAR 24...	1	0	100	10	0	70	2	10	0
29...	--	--	--	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	200	--	--	--
MAY 17...	--	--	--	--	--	240	--	--	--

DATE	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI) (01132)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO) (01062)
MAR 24...	0	0	20	5	110	7	7	140	20	.0	.0	5
APR 21...	--	--	--	--	40	--	--	--	--	--	--	--
MAY 17...	--	--	--	--	50	--	--	--	--	--	--	--

DATE	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
MAR 24...	0	10	3	18	6	2.0	30	10	2.4	12	12	10
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 17...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
MAR 24...	11	4.0	104	25
29...	--	--	113	13
APR 06...	--	--	10	.23
21...	12	.6	--	--
MAY 17...	19	.5	19	.02

06340540 ANTELOPE CREEK TRIBUTARY NEAR HAZEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO MAY 1978

DATE TIME	MAR 24,78 1500		APR 21,78 0830		MAY 17,78 0835	
TOTAL CELLS/ML	3600		7900		290	
DIVERSITY: DIVISION	0.2		1.3		2.1	
.CLASS	0.2		1.4		2.1	
..ORDER	0.2		2.1		2.1	
...FAMILY	0.2		2.4		2.4	
....GENUS	0.3		2.5		2.5	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	29	1	--	-	14	5
....TETRAEDRON	--	-	--	-	14	5
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	55#	19
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	61	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	*	0	670	8	--	-
...VOLVOCACEAE						
....PANDORINA	--	-	1300#	17	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	1800#	22	41	14
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	120	2	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	*	0	--	-	--	-
...NAVICULACEAE						
....NAVICULA	*	0	180	2	--	-
...NITZSCHIACEAE						
....HANTZSCHIA	*	0	--	-	--	-
....NITZSCHIA	*	0	3000#	38	--	-
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	180	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	120	2	27	10
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	360	5	110#	38
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	3500#	97	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	27	10
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	120	2	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340580 COAL CREEK NEAR STANTON, ND

LOCATION.--Lat 47°20'03", long 101°31'38", in SE¼NE¼SE¼ sec.32, T.145 N., R.85 W., Mercer County, Hydrologic Unit 10130201, on right bank 60 ft upstream from bridge, on county road 5.3 mi (8.5 km) northwest of Hazen, and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--15.8 mi² (40.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,710 ft (521 m), from topographic map.

REMARKS.--Records fair except those for March, which are poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 120 ft³/s (3.40 m³/s) Mar. 22, gage height, 8.67 ft (2.643 m), ice jam; only peak above base of 30 ft³/s (0.85 m³/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.10	.20	.05	.00	.00	17	.76	.76	1.3	.00	.00
2	.10	.10	.40	.05	.00	.00	6.5	.59	.67	.97	.00	.00
3	.10	.10	.30	.05	.00	.00	10	.59	.51	.76	.00	.00
4	.13	.10	.20	.05	.00	.00	10	.59	.51	.45	.00	.00
5	.10	.10	.10	.05	.00	.00	18	.56	.39	2.1	.00	.00
6	.08	.10	.10	.05	.00	.00	14	.59	.30	2.6	.00	.00
7	.13	.08	.10	.05	.00	.00	9.0	.86	.28	.76	.00	.00
8	.86	.08	.10	.05	.00	.00	4.0	15	.28	.59	.00	.00
9	.51	.08	.10	.05	.00	.50	3.4	12	.25	.39	.00	.00
10	.39	.08	.10	.00	.00	1.0	10	5.1	.23	.30	.00	.00
11	.39	.10	.10	.00	.00	1.5	11	2.0	.23	.23	.00	.00
12	.39	.10	.10	.00	.00	2.0	8.1	1.2	.25	.23	.00	1.1
13	.28	.10	.10	.00	.00	2.5	8.1	1.2	.39	.23	.00	.30
14	.23	.10	.10	.00	.00	1.5	5.1	.97	.39	.18	.00	.18
15	.20	.10	.10	.00	.00	1.0	3.4	.76	.34	.15	.00	.10
16	.20	.10	.10	.00	.00	1.0	2.8	.59	.45	.08	.00	.00
17	.20	.10	.10	.00	.00	1.0	2.8	.51	.34	.08	.00	.00
18	.20	.10	.10	.00	.00	2.5	4.8	.45	.39	.08	.00	.00
19	.18	.10	.10	.00	.00	8.0	3.0	.45	.34	.15	.00	.00
20	.18	.10	.10	.00	.00	10	1.6	.45	.28	.23	.00	.00
21	.15	.10	.10	.00	.00	70	1.5	.45	.30	.15	.00	.00
22	.13	.10	.10	.00	.00	90	1.5	.45	.30	.05	.00	.00
23	.13	.10	.10	.00	.00	75	3.4	.39	.28	.03	.00	.00
24	.13	.10	.10	.00	.00	70	2.1	.34	.23	.05	.00	.00
25	.13	.05	.10	.00	.00	65	1.8	.34	.28	.08	.00	.00
26	.13	.10	.10	.00	.00	60	1.6	.30	.23	.03	.00	.00
27	.13	.10	.10	.00	.00	55	1.2	.30	.10	.00	.00	.00
28	.13	.10	.10	.00	.00	50	1.1	.30	.00	.00	.00	.00
29	.13	.10	.10	.00	---	45	1.1	.28	.08	.00	.00	.00
30	.13	.10	.10	.00	---	40	.76	.28	5.3	.00	.00	.00
31	.10	---	.10	.00	---	30	---	.39	---	.00	.00	---
TOTAL	6.37	2.87	3.80	.45	.00	682.50	168.66	49.04	14.68	12.25	.00	1.68
MEAN	.21	.096	.12	.015	.000	22.0	5.62	1.58	.49	.40	.000	.056
MAX	.86	.10	.40	.05	.00	90	18	15	5.3	2.6	.00	1.1
MIN	.08	.05	.10	.00	.00	.00	.76	.28	.00	.00	.00	.00
AC-FT	13	5.7	7.5	.9	.00	1350	335	97	29	24	.00	3.3

WTR YR 1978 TOTAL 942.30 MEAN 2.58 MAX 90 MIN .00 AC-FT 1870

06340580 COAL CREEK NEAR STANTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
18...	1500	.22	1850	8.3	21.5	8.0	15.3	136	170	320	430
NOV											
10...	1400	.09	2300	8.6	6.0	2.5	13.9	104	330	1600	510
DEC											
15...	1030	.12	2590	8.1	-6.0	.0	12.6	92	20	150	570
JAN											
04...	1050	.06	2550	7.9	-3.0	.0	9.9	72	K11	K140	500
MAR											
25...	1020	48	278	8.0	4.5	1.0	12.1	91	K7	1800	70
APR											
06...	1810	15	--	--	2.5	--	--	--	--	--	--
19...	1415	2.8	1160	8.5	7.0	8.5	12.1	109	<1	650	270
MAY											
16...	1315	.59	1850	8.6	27.5	22.0	9.9	119	310	94	440
JUN											
13...	1430	.36	2240	8.9	18.0	21.5	11.2	133	700	2300	350
JUL											
25...	1130	.06	1370	8.2	30.0	23.0	5.2	60	830	1300	210

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
18...	0	72	61	320	61	6.7	12	555	0	455	4.5
NOV											
10...	0	77	78	380	61	7.3	13	735	35	661	3.2
DEC											
15...	0	84	87	460	63	8.4	12	945	0	780	12
JAN											
04...	0	82	71	450	66	8.8	11	930	0	760	19
MAR											
25...	0	15	7.9	27	43	1.4	6.2	90	0	74	1.4
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	0	54	33	170	57	4.5	6.6	382	5	322	2.0
MAY											
16...	0	76	61	330	61	6.8	9.6	567	16	492	2.3
JUN											
13...	0	31	65	420	72	9.8	7.9	572	78	599	1.3
JUL											
25...	0	30	33	230	69	6.9	10	566	0	464	5.7

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
18...	590	9.4	.4	12	1370	1350	1.84	.80	.02	.01	.81
NOV											
10...	620	10	.2	6.3	1620	1580	2.15	.38	.01	.01	1.1
DEC											
15...	670	12	.3	18	1830	1810	2.46	.59	.15	.16	.61
JAN											
04...	640	9.4	.3	19	1770	1740	2.37	.28	.23	.26	1.0
MAR											
25...	56	1.8	.0	5.9	166	164	.22	21.3	.45	.22	.77
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	280	4.0	.2	8.0	888	749	1.02	5.66	.02	.03	.60
MAY											
16...	580	6.2	.2	3.5	1360	1360	1.85	2.17	.00	.00	1.0
JUN											
13...	660	6.0	.2	.3	1610	1550	2.11	1.51	.01	.03	1.5
JUL											
25...	230	5.5	.2	1.3	854	819	1.11	.13	.03	.02	1.3

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06340580 COAL CREEK NEAR STANTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)
OCT 18...	.82	.84	3.7	.10	.09	--	--	--	--	--	--
NOV 10...	1.1	1.1	4.9	.08	.05	10	--	3	--	--	600
DEC 15...	.77	.92	4.1	.07	.07	--	--	--	--	--	--
JAN 04...	1.3	1.5	6.8	.11	.09	--	--	--	--	--	--
MAR 25...	.99	1.4	6.4	.21	.11	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
19...	.63	.65	2.9	.05	.03	0	2	2	10	200	100
MAY 16...	1.0	1.0	4.4	.11	.06	--	--	--	--	--	--
JUN 13...	1.5	1.5	6.7	.07	.05	60	6	5	5	100	100
JUL 25...	1.3	1.3	5.9	.22	.19	--	--	--	--	--	--

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVER'BLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT 18...	--	--	--	--	320	--	--	--	--	--
NOV 10...	--	--	0	--	360	--	1	--	--	4
DEC 15...	--	--	--	--	350	--	--	--	--	--
JAN 04...	--	--	--	--	330	--	--	--	--	--
MAR 25...	--	--	--	--	70	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--
19...	30	0	0	0	150	--	2	0	10	0
MAY 16...	--	--	--	--	300	--	--	--	--	--
JUN 13...	80	5	0	0	380	0	1	0	10	0
JUL 25...	--	--	--	--	320	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)
OCT 18...	--	--	--	--	--	--	--	70	--	--	--	--
NOV 10...	--	--	0	--	--	2	--	50	--	1	--	--
DEC 15...	--	--	--	--	--	--	--	110	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	120	--	--	--	--
MAR 25...	--	--	--	--	--	--	--	140	--	--	--	--
APR 19...	1	1	2	6	3	3	4	40	--	--	12	40
MAY 16...	--	--	--	--	--	--	--	40	--	--	--	--
JUN 13...	5	3	0	10	8	4	24	60	4	2	12	110
JUL 25...	--	--	--	--	--	--	--	110	--	--	--	--

06340580 COAL CREEK NEAR STANTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	110	--	8	--	--	.0	--	--	--	1	--	3
DEC 15...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 25...	--	--	--	--	--	--	--	--	--	--	--	--
APR 19...	40	30	10	270	.0	.0	.02	3	0	0	4	3
MAY 16...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 13...	110	60	30	360	.0	.0	.03	5	7	1	6	3
JUL 25...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	--	0	--	2.5	--	20	--	--	--	--	--
DEC 15...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 25...	--	--	--	--	--	--	--	--	--	--	--	--
APR 19...	20	0	0	0	2.0	10	10	14	<10	<.4	10	1.3
MAY 16...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 13...	12	0	0	0	2.0	20	5	16	--	--	--	--
JUL 25...	--	--	--	--	--	--	--	--	--	--	--	--

06340580 COAL CREEK NEAR STANTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 18...	23	.5	34	.02	--	--	--
NOV 10...	17	1.3	32	.01	--	--	--
DEC 15...	15	.2	36	.01	--	--	--
JAN 04...	14	.4	51	.01	--	--	--
MAR 25...	12	.5	59	7.6	--	--	--
APR 06...	--	--	32	1.3	--	--	--
19...	11	.6	19	.14	--	--	--
MAY 16...	23	.7	65	.10	--	--	--
JUN 13...	25	.7	53	.05	6	10	22
JUL 25...	19	.7	16	.00	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT 18...	--	--	--	--	--	--	--
NOV 10...	--	--	--	--	--	--	--
DEC 15...	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--
MAR 25...	--	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
MAY 16...	--	--	--	--	--	--	--
JUN 13...	29	36	43	53	66	83	100
JUL 25...	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 16...	27	.470	.100	1.10	.945

06340580 COAL CREEK NEAR STANTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

	OCT 18,77	NOV 16,77	DEC 15,77	JAN 5,78	MAR 25,78
DATE	OCT 18,77	NOV 16,77	DEC 15,77	JAN 5,78	MAR 25,78
TIME	1500	1400	1030	1050	1020
TOTAL CELLS/ML	330	2	220	190	230
DIVERSITY: DIVISION	1.1	1.9	1.1	0.7	0.3
.CLASS	1.1	1.9	1.1	0.7	0.3
..ORDER	1.7	2.2	1.2	1.3	0.3
...FAMILY	2.2	2.5	2.0	1.6	2.2
....GENUS	2.3	2.9	2.7	1.6	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	0	2	--	-	6	3	--	-
...CHLOROCOCCACEAE										
....CHLOROCOCCUM	25	7	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	25	7	0#	17	52#	24	--	-	14	6
....FRANCEIA	--	-	--	-	7	3	--	-	--	-
....KIRCHNERIELLA	17	5	0	10	52#	24	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	45#	21	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	25	13	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	180#	55	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	0	13	7	3	--	-	--	-
....MELOSIRA	--	-	--	-	--	-	128#	67	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	27	12
...CYMBELLACEAE										
....CYMBELLA	8	2	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	0	4	--	-	19	10	14	6
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	6	3	14	6
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	--	-	14	6
....NAVICULA	8	2	0	4	7	3	6	3	108#	47
...NITZSCHIACEAE										
....NITZSCHIA	25	7	0	6	7	3	--	-	27	12
...SURIRELLACEAE										
....SURIRELLA	8	2	--	-	7	3	--	-	14	6
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....RHODOMONAS	8	2	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	25	7	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	1#	33	30	14	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	0	6	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	0	4	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340580 COAL CREEK NEAR STANTON, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	APR 19,78	MAY 16,78	JUN 13,78	JUL 25,78
TIME	1415	1315	1430	1130
TOTAL CELLS/ML	260	500	240	1300
DIVERSITY: DIVISION	0.3	0.9	0.0	1.6
.CLASS	0.3	0.9	0.0	1.6
..ORDER	0.8	0.9	0.0	1.6
...FAMILY	2.2	1.6	2.1	1.9
....GENUS	2.2	1.6	2.1	2.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	140#	29	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	14	5	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	29	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	27	11	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	45#	19	14	1
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	14	1
....SYNEDRA	27	11	--	-	30	13	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	54#	21	--	-	--	-	29	2
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	27	11	220#	43	100#	44	190	15
...NITZSCHIACEAE								
....NITZSCHIA	110#	42	--	-	30	13	14	1
...SURIRELLACEAE								
....SURIRELLA	--	-	140#	29	30	13	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....RHODOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	650#	52
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	260#	21
....LEPOCINCLIS	--	-	--	-	--	-	29	2
....TRACHELOMONAS	--	-	--	-	--	-	29	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340700 MISSOURI RIVER NEAR STANTON, ND

LOCATION.--Lat 47°17'14", long 101°20'25", in SW¼ sec.16, T.144 N., R.84 W., McLean County, Hydrologic Unit 10130101, on right bank 3 mi (5 km) southeast of Stanton, 0.1 mi (0.2 km) below Ft. Clark irrigation pumping station, 0.4 mi (0.6 km) above the United Power Association power plant, and at mile 1,372 (2,208 km).

DRAINAGE AREA.--182,000 mi² (471,400 km²), approximately.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,650.00 ft (502.920 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 50.00 ft (15.240 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 24.56 ft (7.486 m) Feb. 22, 1965; minimum daily recorded, 10.73 ft (3.270 m) May 7, 1978.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.54	11.24	14.62	14.97	17.97	16.88	14.09	11.59	13.35	16.18	16.12	15.74
2	11.70	11.26	14.41	15.82	18.60	16.79	13.67	11.97	13.41	16.20	15.94	15.22
3	11.61	11.29	14.58	15.69	18.06	17.15	13.88	12.28	13.05	16.21	16.11	16.13
4	11.83	11.31	14.70	15.75	17.66	16.90	13.58	12.28	13.08	16.18	16.11	15.95
5	11.72	11.22	14.19	15.92	17.47	14.60	13.47	12.52	13.18	15.89	16.08	15.81
6	11.98	11.23	14.28	16.06	19.14	15.67	13.33	12.10	12.58	16.13	16.02	15.23
7	12.26	11.23	13.74	16.17	20.33	15.49	13.57	10.73	---	16.13	16.14	15.40
8	11.88	11.36	13.66	18.03	20.59	14.34	14.21	11.65	---	16.13	16.14	15.35
9	11.69	11.45	13.83	18.79	19.60	---	13.40	12.41	13.86	16.13	16.14	15.53
10	11.29	11.53	16.13	18.03	18.54	---	14.12	12.62	14.11	16.15	16.15	15.12
11	11.24	11.26	17.04	17.90	17.99	---	14.03	12.19	14.35	16.18	16.17	15.27
12	11.51	11.26	16.23	17.56	17.08	---	13.02	12.36	14.08	16.15	16.17	14.67
13	11.35	11.20	15.22	17.50	17.31	---	12.64	11.72	14.53	16.11	16.16	14.32
14	11.47	11.47	13.95	17.04	17.32	---	12.11	11.48	15.20	16.13	16.16	14.27
15	11.35	11.14	13.64	16.53	17.66	---	12.26	12.09	15.17	16.15	15.16	14.50
16	11.21	11.17	13.34	16.95	17.45	---	11.29	11.60	15.09	16.15	16.18	14.37
17	11.50	11.42	13.12	17.80	17.38	---	11.85	11.12	15.03	16.15	16.15	13.96
18	11.50	12.25	12.90	18.40	17.28	---	12.16	11.11	15.30	16.13	16.13	14.25
19	11.21	12.41	13.88	18.69	17.29	---	12.63	10.78	15.60	16.14	16.17	14.17
20	11.71	12.38	13.96	19.29	16.90	---	12.16	10.85	15.39	16.13	16.21	14.41
21	11.47	12.40	15.60	19.07	17.11	---	12.46	11.14	15.75	16.13	16.08	14.35
22	11.32	12.98	15.69	18.16	16.72	14.53	12.21	11.04	16.08	16.14	16.13	14.61
23	11.52	13.09	15.00	18.13	16.29	14.72	11.80	11.48	16.09	16.13	16.06	14.49
24	11.67	13.46	14.67	16.94	16.51	11.60	12.19	12.71	16.13	16.15	16.18	14.38
25	11.45	14.39	15.44	18.22	16.47	11.91	12.25	12.74	15.88	16.14	16.17	14.52
26	11.37	14.45	16.64	21.20	16.50	12.30	12.49	13.57	16.01	16.12	16.21	15.84
27	11.21	14.13	16.35	21.47	16.36	12.10	12.46	13.53	15.97	16.13	16.20	15.84
28	11.12	14.91	16.23	20.06	16.04	13.00	12.64	12.77	15.98	16.14	15.51	16.25
29	11.13	14.71	15.66	19.72	---	13.26	12.63	12.82	16.02	16.12	15.25	16.22
30	11.26	14.50	15.43	18.79	---	14.35	11.69	13.16	16.14	16.13	15.37	16.26
31	11.13	---	15.31	19.09	---	14.52	---	13.01	---	16.12	14.98	---
TOTAL	356.20	368.10	459.44	553.74	493.62	---	384.29	373.42	---	500.20	496.75	452.43
MEAN	11.49	12.27	14.82	17.86	17.63	---	12.81	12.05	---	16.14	16.02	15.08
MAX	12.26	14.91	17.04	21.47	20.59	---	14.21	13.57	---	16.21	16.21	16.26
MIN	11.12	11.14	12.90	14.97	16.04	---	11.29	10.73	---	15.89	14.98	13.96

06340780 ALDERIN CREEK NEAR FORT CLARK, ND

LOCATION.--Lat 47°16'09", long 101°18'34", in NW¼NW¼NE¼ sec.27, T.144 N., R.84 W., Mercer County, Hydrologic Unit 10130101, on left bank 80 ft (24 m) upstream from box culvert on North Dakota Highway 200-A, 3.5 mi (5.6 km) northwest of Ft. Clark, and 2.3 mi (3.7 km) upstream from mouth.

DRAINAGE AREA.--21.9 mi² (56.7 km²) of which 1.1 mi² (2.8 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,690 ft (515 m), from topographic map.

REMARKS.--Records fair except those for March, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 75 ft³/s (2.12 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	*240	6.80	*5.80	1.768	Sept. 11	2015	78	2.21	3.41	1.039

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.00	.00	.00	.00	.00	15	.70	.09	.50	.34	.00
2	.17	.00	.00	.00	.00	.00	7.2	.57	.12	.18	.89	.00
3	.11	.00	.00	.00	.00	.00	9.1	.47	.10	.10	.61	.00
4	.06	.00	.00	.00	.00	.00	13	.37	.08	.43	.65	.00
5	.06	.00	.00	.00	.00	.00	12	.29	.05	.21	.74	.00
6	.05	.00	.00	.00	.00	.00	13	.29	.04	.07	.84	.00
7	.57	.00	.00	.00	.00	.00	8.8	1.8	.03	.04	.65	.00
8	4.5	.00	.00	.00	.00	.00	5.0	6.7	.03	.75	.50	.00
9	2.0	.00	.00	.00	.00	.20	3.7	5.2	.02	.65	.56	.00
10	.89	.00	.00	.00	.00	1.0	4.3	1.7	.00	.13	.40	.00
11	.54	.00	.00	.00	.00	5.0	3.9	1.8	.03	.07	1.4	10
12	.29	.00	.00	.00	.00	10	3.5	1.5	1.0	11	1.7	20
13	.20	.00	.00	.00	.00	3.0	2.6	1.0	.21	.57	1.1	1.9
14	.14	.00	.00	.00	.00	2.0	1.7	.61	.13	.17	1.0	.22
15	.09	.00	.00	.00	.00	1.0	1.8	.40	.61	.10	.54	.46
16	.07	.00	.00	.00	.00	.70	1.9	.25	.18	.04	.16	1.5
17	.05	.00	.00	.00	.00	.50	2.0	.21	.21	.03	.08	.71
18	.05	.00	.00	.00	.00	1.0	3.7	.20	.16	.02	.04	.21
19	.04	.00	.00	.00	.00	10	2.3	.17	.08	10	.02	.14
20	.04	.00	.00	.00	.00	30	1.4	.17	.02	.89	.00	.06
21	.03	.00	.00	.00	.00	50	1.1	.17	.01	.95	.00	.03
22	.02	.00	.00	.00	.00	95	1.4	.13	.00	1.4	.00	.02
23	.02	.00	.00	.00	.00	110	2.2	.12	.00	3.2	.00	.01
24	.02	.00	.00	.00	.00	80	1.9	.11	.00	1.2	.00	.00
25	.01	.00	.00	.00	.00	60	1.3	.09	.00	.65	.00	.00
26	.01	.00	.00	.00	.00	93	1.5	.09	.00	.95	.00	.00
27	.03	.00	.00	.00	.00	74	1.1	.09	.00	1.2	.00	.00
28	.02	.00	.00	.00	.00	45	1.2	.07	.00	1.0	.00	.00
29	.00	.00	.00	.00	---	20	1.2	.06	10	.79	.00	.00
30	.00	.00	.00	.00	---	30	1.0	.05	4.8	1.1	.00	.00
31	.00	---	.00	.00	---	30	---	.06	---	.65	.00	---
TOTAL	10.42	.00	.00	.00	.00	751.40	129.8	25.44	18.00	39.04	12.22	35.26
MEAN	.34	.000	.000	.000	.000	24.2	4.33	.82	.60	1.26	.39	1.18
MAX	4.5	.00	.00	.00	.00	110	15	6.7	10	11	1.7	20
MIN	.00	.00	.00	.00	.00	.00	1.0	.05	.00	.02	.00	.00
AC-FT	21	.00	.00	.00	.00	1490	257	50	36	77	24	70

WTR YR 1978 TOTAL 1021.58 MEAN 2.80 MAX 110 MIN .00 AC-FT 2030

06340780 ALDERIN CREEK NEAR FORT CLARK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
19...	1100	.04	1750	8.5	22.0	7.0	11.8	102	K64	620
MAR										
25...	1445	56	276	8.3	14.0	1.0	12.5	94	--	10000
APR										
06...	1500	12	--	--	--	2.0	--	--	--	--
18...	1130	4.0	1340	8.3	11.0	6.0	11.8	102	<1	K420
MAY										
10...	1600	1.6	1570	8.6	25.5	20.0	9.7	108	1100	630
JUL										
26...	0745	.87	2040	8.3	21.0	19.5	8.2	94	K720	1900
AUG										
08...	1305	.50	2580	8.6	27.0	21.0	9.4	111	640	1400
SEP										
16...	1530	1.4	1700	8.5	15.0	16.5	8.8	97	1300	1500

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)
OCT										
19...	290	0	56	37	340	71	8.7	11	516	11
MAR										
25...	56	0	12	6.3	30	49	1.7	8.6	234	0
APR										
06...	--	--	--	--	--	--	--	--	--	--
18...	260	0	53	32	200	61	5.4	10	407	0
MAY										
10...	310	0	57	40	270	65	6.7	11	466	9
JUL										
26...	240	0	48	34	400	77	11	12	508	0
AUG										
08...	240	0	41	34	510	81	14	13	511	12
SEP										
16...	200	0	40	25	310	76	9.5	12	375	14

DATE	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT										
19...	441	2.7	510	8.2	.3	8.8	1240	1240	1.69	.13
MAR										
25...	192	1.9	51	3.3	.1	5.6	162	233	.32	35.2
APR										
06...	--	--	--	--	--	--	--	--	--	--
18...	334	3.3	360	4.7	.2	4.6	918	865	1.18	9.34
MAY										
10...	412	1.9	440	5.1	.2	4.4	1090	1070	1.46	4.62
JUL										
26...	420	4.1	670	4.3	.4	5.3	1450	1420	1.93	3.34
AUG										
08...	439	2.1	850	3.3	.5	2.9	1700	1720	2.34	2.32
SEP										
16...	329	2.0	560	6.1	.3	7.0	1230	1160	1.58	4.48

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06340780 ALDERIN CREEK NEAR FORT CLARK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT										
19...	.01	.06	1.4	1.5	1.5	6.7	.11	.04	--	--
MAR										
25...	1.6	.71	2.1	2.8	4.4	19	.80	.14	80	4
APR										
06...	--	--	--	--	--	--	--	--	--	--
18...	.11	.03	.92	.95	1.1	4.7	.11	.02	--	--
MAY										
10...	.01	.04	1.1	1.1	1.1	4.9	.09	.01	--	--
JUL										
26...	.03	.01	1.8	1.8	1.8	8.1	.10	.01	--	--
AUG										
08...	.09	.48	.47	.95	1.0	4.6	.01	.01	140	--
SEP										
16...	.01	.01	1.6	1.6	1.6	7.1	.17	.04	--	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
19...	--	--	--	--	--	290	--	--	--	--
MAR										
25...	2	300	0	10	0	50	2	2	40	0
APR										
06...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	210	--	--	--	--
MAY										
10...	--	--	--	--	--	270	--	--	--	--
JUL										
26...	--	--	--	--	--	370	--	--	--	--
AUG										
08...	3	--	200	--	0	420	--	0	--	0
SEP										
16...	--	--	--	--	--	310	--	--	--	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
OCT									
19...	--	--	--	--	--	--	--	--	--
MAR									
25...	40	.0	.0	0	0	41	3	2	0
APR									
18...	--	--	--	--	--	--	--	--	--
MAY									
10...	--	--	--	--	--	--	--	--	--
JUL									
26...	--	--	--	--	--	--	--	--	--
AUG									
08...	10	--	.0	--	7	--	5	--	2
SEP									
16...	--	--	--	--	--	--	--	--	--

06340780 ALDERIN CREEK NEAR FORT CLARK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT 19...	--	--	--	--	70	--	--	--	--
MAR 25...	9	2	60	9	180	--	30	5	1200
APR 18...	--	--	--	--	80	--	--	--	--
MAY 10...	--	--	--	--	50	--	--	--	--
JUL 26...	--	--	--	--	120	--	--	--	--
AUG 08...	--	1	--	25	50	4	--	60	--
SEP 16...	--	--	--	--	160	--	--	--	--

DATE	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT 19...	--	--	--	--	--	--	--	--	--
MAR 25...	2.0	180	0	<2.5	75	11	48	--	--
AUG 08...	.0	--	20	--	--	--	--	--	--
SEP 16...	--	--	--	19	12	13	12	12	11

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 19...	17	--	184	.02	--	--	--
MAR 25...	14	--	2040	308	--	--	--
APR 06...	--	--	128	4.1	87	95	99
18...	16	2.5	--	--	--	--	--
MAY 10...	24	1.4	166	.72	28	44	73
JUL 26...	7.6	1.7	201	.47	--	--	--
AUG 08...	19	.7	105	.14	--	--	--
SEP 16...	23	4.0	235	.91	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
APR 06...	100	100	100	--	--	--	--
18...	--	--	--	--	--	--	--
MAY 10...	86	89	93	98	98	99	100

ALDERIN CREEK BASIN

06340780 ALDERIN CREEK NEAR FORT CLARK, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 19,77	MAR 25,78	APR 17,78	MAY 10,78
TIME	1100	1445	1130	1600
TOTAL CELLS/ML	86000	110	7300	27000
DIVERSITY: DIVISION	0.2	0.0	1.0	0.7
.CLASS	0.2	0.0	1.0	0.7
..ORDER	0.2	0.0	1.3	1.0
...FAMILY	0.2	1.4	1.9	1.4
....GENUS	0.2	2.2	2.0	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	*	0	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	*	0	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	*	0	--	-	--	-	300	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	*	0
....KIRCHNERIELLA	*	0	--	-	--	-	*	0
....OOCYSTIS	--	-	--	-	160	2	--	-
....SELENASTRUM	--	-	--	-	--	-	300	1
...SCENEDESMACEAE								
....ACTINASTRUM	440	1	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	150	1
....SCENEDESMUS	*	0	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	150	1
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	*	0	--	-	1600#	21	150	1
...VOLVOCACEAE								
....EUDORINA	--	-	--	-	2900#	39	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	*	0	--	-	280	4	150	1
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	*	0
....EPITHEMIA	--	-	43#	38	--	-	--	-
....RHOPALODIA	--	-	14	13	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	420	2
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	14	13	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	14	13	--	-	--	-
....NAVICULA	*	0	29#	25	--	-	300	1
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	2300#	32	640	2
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	40	1	150	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	*	0	--	-	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	*	0	800	3
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	520	1	--	-	--	-	1500	6
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	21000#	78
....OSCILLATORIA	84000#	97	--	-	*	0	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	40	1	--	-
....PHACUS	*	0	--	-	--	-	150	1
....TRACHELOMONAS	--	-	--	-	40	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06340780 ALDERIN CREEK NEAR FORT CLARK, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUL 26,78		AUG 8,78		SEP 16,78	
TIME	0745		1305		1530	
TOTAL CELLS/ML	2900		810		13000	
DIVERSITY: DIVISION	1.0		1.7		0.1	
.CLASS	1.0		1.7		0.1	
..ORDER	1.0		2.0		0.2	
...FAMILY	1.1		2.1		0.4	
....GENUS	1.2		2.1		0.4	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	100	13	*	0
....DICTYOSPHAERIUM	--	-	--	-	120	1
....FRANCEIA	--	-	--	-	*	0
....KIRCHNERIELLA	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	89	3	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-
....SCENEDESMUS	89	3	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	--	-
...VOLVOCACEAE						
....EUDORINA	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....CLOSTERIUM	22	1	43	5	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	120	14	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	14	2	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....GYROSIGMA	44	2	--	-	--	-
....NAVICULA	44	2	43	5	*	0
...NITZSCHIACEAE						
....NITZSCHIA	290	10	--	-	*	0
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	--	-
...CRYPTOMONODACEAE						
....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	*	0
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	560	4
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	2300#	79	430#	54	12000#	94
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	22	1	14	2	*	0
....PHACUS	--	-	--	-	--	-
....TRACHELOMONAS	--	-	43	5	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MISSOURI RIVER MAIN STEM

06340900 MISSOURI RIVER NEAR HENSLER, ND

LOCATION.--Lat 47°16'45", long 101°11'03", in SW¼ sec.22, T.144 N., R.83 W., McLean County, Hydrologic Unit 10130101, on left bank about 7.5 mi (12.1 km) west of Washburn, and at mile 1,362 (2,191 km).

DRAINAGE AREA.--183,000 mi² (474,000 km²), approximately.

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,640.00 ft (499.872 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 40 ft (12.192 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000). No records were obtained during the 1978 water year because of ice action during the winter months and bank stabilization work during the summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 27.77 ft (8.464 m) Mar. 20, 1965; minimum daily recorded, 15.52 ft (4.730 m) May 10, 1966.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												---
18												---
19												---
20												19.66
21												19.40
22												19.60
23												19.64
24												19.30
25												19.48
26												20.79
27												20.85
28												21.19
29												21.19
30												21.22
31												---
TOTAL												---
MEAN												---
MAX												---
MIN												---

06340905 COAL LAKE COULEE NEAR HENSLER, ND

LOCATION.--Lat 47°18'09", long 101°07'52", in SW¼SE¼SE¼ sec.12, T.144 N., R.83 W., McLean County, Hydrologic Unit 10130101, on right bank 100 ft (30 m) upstream from bridge, on county road 4.5 mi (7.2 km) west of Washburn, 3.6 mi (5.8 km) northwest of Hensler, and 0.3 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--7.5 mi² (19.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,690 ft (515 m), from topographic map.

REMARKS.--Records fair except those for March, which are poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 80 ft³/s (2.27 m³/s) March 21, only peak above base of 40 ft³/s (1.13 m³/s); maximum gage height, 5.05 ft (1.539 m) Mar. 19, ice jam; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	2.3	.48	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	1.7	.41	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	1.9	.35	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	1.9	.32	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	2.1	.24	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	1.7	.20	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	1.4	.80	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	1.0	1.2	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	1.0	1.1	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.20	1.1	.85	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	1.0	.96	.60	.00	.00	.00	.27
12	.00	.00	.00	.00	.00	2.0	.96	.48	.00	.00	.00	2.3
13	.54	.00	.00	.00	.00	2.5	.91	.38	.00	.00	.00	1.4
14	.00	.00	.00	.00	.00	3.0	.80	.29	.00	.00	.00	.53
15	.00	.00	.00	.00	.00	2.5	.80	.20	.00	.00	.00	.26
16	.00	.00	.00	.00	.00	2.0	.85	.13	.00	.00	.00	.09
17	.00	.00	.00	.00	.00	1.0	.96	.03	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	4.0	1.4	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	6.0	1.1	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	15	1.0	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	30	.85	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	40	.80	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	25	1.0	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	18	1.1	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	20	.91	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	23	.80	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	12	.69	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	5.7	.65	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	4.9	.69	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	5.1	.65	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	4.0	---	.00	---	.00	.00	---
TOTAL	.54	.00	.00	.00	.00	226.90	33.98	8.06	.00	.00	.00	4.85
MEAN	.017	.000	.000	.000	.000	7.32	1.13	.26	.000	.000	.000	.16
MAX	.54	.00	.00	.00	.00	40	2.3	1.2	.00	.00	.00	2.3
MIN	.00	.00	.00	.00	.00	.00	.65	.00	.00	.00	.00	.00
AC-FT	1.1	.00	.00	.00	.00	450	67	16	.00	.00	.00	9.6

WTR YR 1978 TOTAL 274.33 MEAN .75 MAX 40 MIN .00 AC-FT 544

06340905 COAL LAKE COULEE NEAR HENSLER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
MAR											
28...	1030	5.0	360	8.0	5.5	1.0	12.7	95	K35	78	96
APR											
06...	1130	1.6	--	--	--	4.0	--	--	--	--	--
18...	0800	1.4	1130	8.5	4.0	6.0	11.2	97	<1	110	260
MAY											
10...	0945	.85	1480	8.5	20.0	14.0	9.8	108	360	250	320

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
MAR											
28...	0	22	10	44	48	2.0	5.0	118	0	97	1.9
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
18...	0	58	28	170	58	4.6	4.9	458	60	476	2.6
MAY											
10...	0	61	40	250	63	6.1	7.2	604	18	525	3.1

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
MAR											
28...	63	2.0	.1	8.1	217	213	.29	2.8	.23	.13	.69
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	809	--	1.10	3.1	.02	.01	.87
MAY											
10...	300	3.9	.2	14	1000	992	1.35	2.2	.02	.04	1.3

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)
MAR											
28...	.82	1.1	4.6	.19	.10	0	2	2	16	0	0
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
18...	.88	.90	4.0	.08	.05	--	--	--	--	--	--
MAY											
10...	1.3	1.3	5.8	.11	.06	--	--	--	--	--	--

06340905 COAL LAKE COULEE NEAR HENSLER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
MAR 28...	1200	0	0	10	70	3	2	5	20	0
APR 06...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	250	--	--	--	--	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)
MAR 28...	20	8600	.0	.0	.12	6	2	2	3	2	40
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
MAR 28...	60	0	0	20	4	3	8	100	57	10	8	40
APR 18...	--	--	--	--	--	--	--	90	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	50	--	--	--	--

06340905 COAL LAKE COULEE NEAR HENSLER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
MAR 28...	8	0	0	2.0	10	0	370	3.6	1.7	10	2.6
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--	--	--

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
MAR 28...	8.0	--	26	.35	--	--	--	--
APR 06...	--	--	12	.05	4	5	10	20
18...	7.7	1.4	--	--	--	--	--	--
MAY 10...	20	1.0	64	.15	4	7	11	15

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
MAR 28...	--	--	--	--	--	--	--
APR 06...	29	36	47	64	88	100	--
18...	--	--	--	--	--	--	--
MAY 10...	24	30	40	52	63	86	100

06340905 COAL LAKE COULEE NEAR HENSLER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO MAY 1978

DATE	MAR 28,78	APR 17,78	MAY 10,78
TIME	1030	0800	0945
TOTAL CELLS/ML	680	900	6400
DIVERSITY: DIVISION	0.2	0.3	1.5
.CLASS	0.2	0.3	1.5
..ORDER	0.2	1.2	2.0
...FAMILY	0.0	2.3	2.3
....GENUS	0.0	0.0	2.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	770	12
....KIRCHNERIELLA	--	-	--	-	320	5
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	180	3
....SCENEDESMUS	--	-	--	-	180	3
..VOLVOCALES						
...CHLAMYDOMONADACEAE	20	3	40	4	--	-
....CHLAMYDOMONAS	--	-	--	-	270	4
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	380#	42	3200#	51
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	140#	16	140	2
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	46	1
...MERIDIONACEAE						
....MERIDION	--	-	60	7	--	-
...NAVICULACEAE						
....NAVICULA	--	-	20	2	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	99	11	91	1
...SURIRELLACEAE						
....SURIRELLA	--	-	160#	18	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONIDALES						
...CRYPTOMONODACEAE						
....CRYPTOMONAS	--	-	--	-	46	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	620	10
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	230	4
..HORMOGONALES	660#	97	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	46	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY					
10...	23	.010	.120	2.60	2.36

06341000 MISSOURI RIVER AT WASHBURN, ND

LOCATION.--Lat 47°17'20", long 101°02'15", in SE¼SW¼ sec.14, T.144 N., R.82 W., McLean County, Hydrologic Unit 10130101, on left bank near municipal water plant in Washburn, and at mile 1,355 (2,180 km).

DRAINAGE AREA.--184,000 mi² (476,600 km²), approximately.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,640.00 ft (499.872 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, at datum 40 ft (12.192 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 22.76 ft (6.937 m) Jan. 11, 1964; minimum daily recorded, 9.73 ft (2.966 m) May 7, 1978.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.49	11.00	13.64	18.36	19.06		---	10.53	12.81	15.75	15.85	15.46
2	11.56	10.99	13.76	18.87	20.65		---	11.34	12.97	15.76	15.72	15.14
3	11.41	10.94	13.68	19.22	22.53		---	11.66	12.61	15.76	15.82	15.78
4	11.51	11.01	13.85	19.21	22.55		---	11.45	12.86	15.77	15.85	15.78
5	11.50	10.93	13.63	19.26	21.00		---	11.69	12.70	15.57	15.63	15.75
6	11.51	10.89	13.69	19.37	21.07		---	11.38	13.09	15.67	15.81	15.22
7	11.62	10.88	13.39	19.51	20.97		---	9.73	12.98	15.71	15.87	15.21
8	11.56	10.98	14.04	19.05	20.55		---	10.14	13.15	15.72	15.90	15.29
9	11.35	11.06	16.98	19.74	20.32		---	11.54	13.52	15.70	15.90	15.33
10	11.07	11.16	18.00	19.57	20.00		---	11.69	13.80	15.75	15.93	15.10
11	10.97	11.06	18.52	19.52	19.49		---	11.58	14.04	15.79	15.95	15.26
12	11.01	10.94	18.84	19.68	18.84		12.53	11.67	13.88	15.81	15.95	14.78
13	11.02	10.88	18.78	19.79	18.68		11.85	11.00	14.17	15.77	15.97	14.31
14	11.11	11.07	18.03	19.67	18.80		11.70	10.38	14.72	15.81	15.96	14.15
15	11.10	10.96	17.73	19.22	19.05		11.59	10.88	14.80	15.82	15.96	14.23
16	11.02	10.91	16.94	19.13	18.89		11.23	10.68	14.84	15.83	15.97	14.27
17	10.87	10.96	16.19	18.92	18.81		10.35	10.69	14.65	15.83	15.99	13.81
18	10.74	11.32	15.72	19.28	18.74		11.64	10.69	14.76	15.80	15.96	14.05
19	11.02	11.89	16.32	19.23	19.00		11.79	10.48	15.00	15.85	15.99	14.01
20	10.96	11.95	16.32	19.68	18.48		11.58	10.65	14.94	15.82	16.03	14.11
21	11.11	11.86	16.83	19.35	18.82		11.67	10.72	15.19	15.81	15.99	14.23
22	10.97	12.08	17.86	19.04	18.61		11.57	10.68	15.58	15.82	15.97	14.45
23	11.15	12.51	17.99	18.48	---		11.38	11.02	15.67	15.81	15.95	14.50
24	11.05	13.00	17.90	18.42	---		11.26	12.11	15.70	15.82	16.05	14.06
25	11.04	13.43	17.36	17.99	---		11.50	11.97	15.57	15.83	16.08	14.35
26	11.08	13.66	17.95	18.45	---		11.52	13.04	15.57	15.81	16.10	15.49
27	10.98	13.41	18.53	19.62	---		11.37	13.10	15.58	15.82	16.08	15.62
28	10.95	13.69	18.97	19.47	---		11.70	12.63	15.60	15.84	15.73	15.93
29	10.82	13.86	19.00	19.50	---		11.69	12.46	15.62	15.82	15.23	15.94
30	11.05	13.68	18.80	19.15	---		10.97	12.69	15.67	15.85	15.31	15.96
31	10.92	---	18.78	19.71	---		---	12.69	---	15.84	15.07	---
TOTAL	345.48	352.96	518.02	595.46	---	---	---	352.96	432.04	489.36	491.77	447.57
MEAN	11.14	11.77	16.71	19.21	---	---	---	11.39	14.40	15.79	15.86	14.92
MAX	11.62	13.86	19.00	19.79	---	---	---	13.10	15.70	15.85	16.10	15.96
MIN	10.74	10.88	13.39	17.99	---	---	---	9.73	12.61	15.57	15.07	13.81

06341800 PAINTED WOODS CREEK NEAR WILTON, ND

LOCATION.--Lat 47°16'30", long 100°47'30", in SW¼SW¼ sec.23, T.144 N., R.80 W., McLean County, Hydrologic Unit 10130101, on right bank 600 ft (180 m) upstream from county highway bridge, 7 mi (11 km) upstream from Yanktonai Creek, and 8 mi (13 km) north of Wilton.

DRAINAGE AREA.--427 mi² (1,110 km²), approximately, of which about 310 mi² (800 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,760 ft (536 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--21 years, 7.58 ft³/s (0.215 m³/s), 5,490 acre-ft/yr (6.77 hm³/yr); median of yearly mean discharges, 7.4 ft³/s (0.21 m³/s), 5,400 acre-ft/yr (6.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft³/s (51.0 m³/s) Apr. 9, 1969, gage height, 8.12 ft (2.475 m), backwater from ice; maximum gage height, 8.67 ft (2.643 m) Mar. 15, 1966, backwater from ice; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	--	a*1,200	34.0	*7.80	2.377	Sept.12	0345	194	5.49	5.75	1.753

No flow Aug. 18-21, Sept. 9.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	1.0	.28	.18	.03	.02	92	5.7	2.7	.67	.09	.05
2	2.1	1.0	.28	.18	.03	.02	63	4.4	2.7	.57	.09	.04
3	1.4	1.1	.28	.18	.03	.02	52	4.1	2.7	.44	.08	.04
4	1.4	1.1	.28	.18	.03	.02	56	3.6	3.0	.40	.07	.03
5	1.0	1.0	.28	.18	.03	.02	53	3.2	2.6	.57	.07	.03
6	1.0	1.1	.26	.18	.03	.02	43	3.2	2.1	.44	.07	.02
7	2.1	1.2	.24	.18	.03	.02	40	3.6	1.8	.36	.05	.02
8	3.6	1.2	.22	.18	.03	.02	34	11	2.0	.30	.04	.01
9	3.9	1.1	.20	.16	.03	.04	27	19	1.7	.33	.04	.00
10	3.6	1.0	.20	.16	.03	.06	25	23	.86	.27	.04	.04
11	2.9	.95	.20	.16	.03	.10	23	23	.86	.30	.03	.40
12	2.6	.90	.20	.16	.03	.10	21	18	.86	.40	.03	99
13	2.1	.90	.20	.16	.03	.10	17	14	.86	.40	.02	26
14	2.1	.90	.20	.16	.03	.08	18	12	.79	.33	.02	12
15	2.4	.90	.20	.16	.03	.08	13	9.2	.79	.24	.03	6.0
16	2.1	.90	.20	.15	.03	.06	10	7.2	.48	.22	.03	3.0
17	2.1	.90	.20	.15	.03	.05	7.7	5.7	.52	.20	.02	1.0
18	2.4	.80	.20	.15	.02	.10	13	5.2	.52	.18	.00	.60
19	2.1	.70	.20	.15	.02	10	13	5.2	.48	.27	.00	.40
20	2.1	.60	.20	.15	.02	80	13	4.8	.40	.22	.00	.30
21	2.1	.50	.20	.15	.02	250	13	4.4	.40	.20	.00	.25
22	1.7	.42	.20	.15	.02	600	11	3.6	.33	.18	.01	.20
23	1.4	.35	.20	.15	.02	830	10	3.2	.27	.18	.02	.16
24	1.3	.30	.20	.15	.02	400	13	3.2	.18	.18	.03	.12
25	1.3	.28	.20	.15	.02	250	12	2.6	.36	.18	.03	.10
26	1.4	.28	.20	.15	.02	300	10	2.3	.57	.13	.06	.10
27	1.0	.28	.20	.13	.02	310	8.7	2.1	.36	.12	.06	.10
28	1.0	.28	.20	.11	.02	396	7.5	1.3	.27	.10	.06	.10
29	1.1	.28	.20	.09	---	230	7.2	1.6	.36	.10	.05	.08
30	1.2	.28	.20	.07	---	141	7.2	2.3	.67	.10	.05	.08
31	1.0	---	.20	.05	---	99	---	2.6	---	.09	.06	---
TOTAL	61.7	22.50	6.72	4.66	.73	3896.93	733.3	214.3	32.49	8.67	1.25	150.27
MEAN	1.99	.75	.22	.15	.026	126	24.4	6.91	1.08	.28	.040	5.01
MAX	4.2	1.2	.28	.18	.03	830	92	23	3.0	.67	.09	99
MIN	1.0	.28	.20	.05	.02	.02	7.2	1.3	.18	.09	.00	.00
AC-FT	122	45	13	9.2	1.4	7730	1450	425	64	17	2.5	298

CAL YR 1977 TOTAL 277.32 MEAN .76 MAX 13 MIN .00 AC-FT 550
WTR YR 1978 TOTAL 5133.52 MEAN 14.1 MAX 830 MIN .00 AC-FT 10180

MISSOURI RIVER MAIN STEM

06342020 MISSOURI RIVER AT PRICE, ND

LOCATION.--Lat 47°04'47", long 100°55'55", in NW¼ sec.34, T.142 N., R.81 W., Oliver County, Hydrologic Unit 10130101, on right bank 0.5 mi (0.8 km) south of Price, and at mile 1,338 (2,153 km).

DRAINAGE AREA.--185,000 mi² (479,200 km²), approximately.

PERIOD OF RECORD.--November 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,620.00 ft (493.776 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1964, at datum 20 ft (6.096 m) lower.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 30.12 ft (9.181 m) Jan. 22, 1967; minimum daily recorded, 17.76 ft (5.413 m) Mar. 31, 1968.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.38	18.95	21.78	26.13	26.41	25.49	21.82	18.84	20.83	23.93	23.89	23.08
2	19.37	18.99	21.86	25.88	26.60	25.50	21.34	19.12	21.01	23.93	23.82	23.26
3	19.30	---	21.76	26.37	26.38	25.44	21.06	19.37	20.78	23.93	23.82	23.41
4	19.29	---	21.92	26.41	26.15	26.02	20.90	19.33	20.86	23.95	23.89	23.77
5	19.35	---	22.02	26.49	25.89	25.30	20.76	19.45	20.78	23.85	23.88	23.73
6	19.31	---	22.28	26.52	25.65	24.96	20.72	19.43	20.74	23.76	23.85	23.37
7	19.42	---	22.50	26.61	26.06	25.39	20.58	18.89	21.04	23.88	23.86	23.09
8	19.41	---	26.22	25.98	26.23	25.46	20.92	18.83	21.15	23.89	23.93	23.26
9	19.21	---	25.94	26.02	26.42	25.49	21.14	19.22	21.51	23.87	23.94	23.23
10	19.08	---	25.85	26.50	26.26	25.34	20.61	19.48	21.86	23.89	23.95	23.31
11	19.00	---	26.65	26.39	25.17	25.13	21.13	19.52	22.19	23.91	23.95	23.12
12	18.97	---	27.17	26.45	25.88	24.34	20.74	19.54	22.17	23.93	23.96	23.00
13	19.05	---	27.28	26.63	25.48	23.69	19.79	19.17	22.23	23.90	23.98	22.34
14	19.02	---	26.80	26.75	25.80	23.23	19.64	18.84	22.74	23.90	23.97	22.05
15	19.01	---	26.24	26.39	25.98	22.42	19.37	18.95	23.06	23.90	23.97	22.15
16	18.98	---	26.20	26.12	26.16	21.88	19.44	18.68	23.12	23.93	23.98	22.11
17	18.94	---	26.03	25.99	26.00	21.56	18.82	18.82	22.95	23.93	24.00	22.17
18	19.01	---	25.68	26.26	25.93	21.24	19.38	18.83	22.96	23.91	23.98	21.89
19	18.98	---	25.46	26.23	26.10	20.89	19.36	18.82	23.18	23.95	23.94	21.97
20	18.96	---	25.42	26.60	25.76	20.26	19.45	18.82	23.26	23.92	24.00	22.16
21	18.98	---	24.93	26.51	25.97	20.81	19.38	18.80	23.29	23.90	24.00	21.62
22	18.97	---	26.42	26.21	26.05	21.49	19.42	18.89	23.67	23.90	23.90	22.34
23	19.00	20.31	26.60	25.56	25.77	21.82	19.36	18.96	23.91	23.90	23.93	22.37
24	18.96	20.77	26.55	25.76	25.73	20.76	19.05	19.67	23.91	23.90	24.05	22.00
25	18.97	21.18	25.78	25.31	25.60	19.20	19.27	20.46	23.84	23.89	23.99	22.19
26	18.95	21.85	25.36	25.25	25.30	19.19	19.30	20.88	23.72	23.89	24.02	23.01
27	18.93	21.59	26.24	26.38	25.15	19.54	19.18	21.17	23.79	23.87	24.02	23.65
28	18.92	21.60	26.62	26.65	25.24	20.14	19.45	20.92	23.80	23.89	23.91	23.94
29	18.91	22.06	26.85	26.59	---	20.45	19.56	20.58	23.78	23.88	23.17	24.06
30	18.95	21.92	26.67	26.35	---	21.17	19.22	20.68	23.84	23.90	23.18	24.07
31	18.93	---	26.50	26.67	---	21.85	---	20.81	---	23.90	23.07	---
TOTAL	591.51	---	783.58	813.96	726.12	705.45	600.16	603.77	675.97	740.88	739.80	685.72
MEAN	19.08	---	25.28	26.26	25.93	22.76	20.01	19.48	22.53	23.90	23.86	22.86
MAX	19.42	---	27.28	26.75	26.60	26.02	21.82	21.17	23.91	23.95	24.05	24.07
MIN	18.91	---	21.76	25.25	25.15	19.19	18.82	18.68	20.74	23.76	23.07	21.62

SQUARE BUTTE CREEK BASIN

06342040 SQUARE BUTTE CREEK NEAR HANNOVER, ND

LOCATION.--Lat 47°08'06", long 101°25'31", in NW¼SW¼NW¼ sec.11, T.142 N., R.85 W., Oliver County, Hydrologic Unit 10130101, on left bank 100 ft (30 m) downstream from box culvert on North Dakota Highway 31, 1.5 mi (2.4 km) north of Hannover, and 2.6 mi (4.2 km) upstream from Brady Creek.

DRAINAGE AREA.--16.9 mi^2 (43.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,070 ft (631 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 300 ft^3/s (8.50 m^3/s) Mar. 26, only peak above base of 50 (1.42 m^3/s); maximum gage height, 8.86 ft (2.700 m) Mar. 21; ice jam; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.25	.20	.00	.00	.00	18	.49	3.5	.58	.00	.00
2	.22	.25	.15	.00	.00	.00	3.2	.49	3.7	.34	.00	.00
3	.20	.22	.10	.00	.00	.00	19	.49	3.2	.14	.00	.00
4	.20	.22	.04	.00	.00	.00	19	.49	2.2	.03	.00	.00
5	.14	.22	.00	.00	.00	.00	22	.41	1.5	.01	.00	.00
6	.14	.22	.00	.00	.00	.00	16	.49	.80	.00	.00	.00
7	.14	.22	.00	.00	.00	.00	6.2	.92	.46	.00	.00	.00
8	.38	.25	.00	.00	.00	.00	2.2	8.5	.30	.00	.00	.00
9	2.2	.25	.00	.00	.00	.00	1.4	8.1	.25	.00	.00	.00
10	2.2	.22	.00	.00	.00	.00	1.7	3.5	.11	.00	.00	.00
11	1.9	.20	.00	.00	.00	.00	1.7	1.9	.15	.00	.00	.50
12	1.0	.20	.00	.00	.00	.00	2.1	1.9	1.9	.00	.00	2.1
13	.66	.20	.00	.00	.00	.00	1.8	2.4	2.8	.00	.00	2.5
14	.49	.20	.00	.00	.00	.00	2.0	2.2	.88	.00	.00	.05
15	.34	.20	.00	.00	.00	.00	1.1	1.5	.50	.00	.00	.00
16	.34	.20	.00	.00	.00	.00	1.0	1.0	.82	.00	.00	.00
17	.34	.20	.00	.00	.00	.00	1.1	.68	.92	.00	.00	.00
18	.34	.15	.00	.00	.00	.00	1.5	.49	.41	.00	.00	.00
19	.34	.10	.00	.00	.00	1.0	1.1	.49	.25	.00	.00	.00
20	.34	.05	.00	.00	.00	10	.69	.58	.14	.14	.00	.00
21	.41	.00	.00	.00	.00	40	.63	.58	.12	.14	.00	.00
22	.34	.00	.00	.00	.00	85	.68	.49	.04	.02	.00	.00
23	.34	.00	.00	.00	.00	60	.93	.41	.01	.08	.00	.00
24	.41	.00	.00	.00	.00	30	1.0	.41	.00	.17	.00	.00
25	.49	.00	.00	.00	.00	70	.92	.49	.00	.11	.00	.00
26	.49	.00	.00	.00	.00	190	.80	.58	.00	.01	.00	.00
27	.41	.00	.00	.00	.00	150	.68	.41	.00	.00	.00	.00
28	.34	.00	.00	.00	.00	80	.68	.41	.04	.00	.00	.00
29	.28	.00	.00	.00	---	55	.68	.49	.05	.00	.00	.00
30	.28	.00	.00	.00	---	70	.58	.60	.25	.00	.00	.00
31	.28	---	.00	.00	---	45	---	2.4	---	.00	.00	---
TOTAL	16.22	4.02	.49	.00	.00	886.00	130.37	44.49	25.30	1.73	.00	5.15
MEAN	.52	.13	.016	.000	.000	28.6	4.35	1.44	.84	.056	.000	.17
MAX	2.2	.25	.20	.00	.00	190	22	8.5	3.7	.58	.00	2.5
MIN	.14	.00	.00	.00	.00	.00	.58	.41	.00	.00	.00	.00
AC-FT	32	8.0	1.0	.00	.00	1760	259	88	50	3.4	.00	10

WTR YR 1978 TOTAL 1113.77 MEAN 3.05 MAX 190 MIN .00 AC-FT 2210

06342040 SQUARE BUTTE CREEK NEAR HANNOVER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
18...	1000	.36	1190	8.2	12.5	7.5	12.5	103	K6	60	490
NOV											
09...	1400	.25	1280	8.0	3.0	2.0	12.0	93	K11	46	500
MAR											
29...	1145	55	274	7.7	11.5	1.5	10.8	82	23	8000	100
APR											
06...	1500	12	--	--	12.0	7.0	--	--	--	--	--
19...	1230	3.5	1140	8.3	6.0	6.0	11.8	123	K10	K75	450
MAY											
12...	1345	1.7	1550	--	11.5	15.0	10.0	105	K11	64	620
JUN											
15...	1500	.46	1110	8.3	16.0	16.0	11.4	144	42	125	440
30...	0900	.12	--	--	21.5	22.0	--	--	--	--	--

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
18...	180	93	62	98	30	1.9	8.0	378	0	310	3.8
NOV											
09...	160	100	61	110	32	2.1	7.4	410	0	336	6.6
MAR											
29...	22	22	11	15	23	.7	6.6	95	0	78	3.0
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	240	86	56	88	30	1.8	8.0	260	0	213	2.1
MAY											
12...	--	110	84	130	31	2.3	11	--	--	--	--
JUN											
15...	120	81	57	100	33	2.1	5.5	396	0	325	3.2
30...	--	--	--	--	--	--	--	--	--	--	--

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
18...	350	7.0	.5	12	829	817	1.11	.79	.01	.01	.87
NOV											
09...	380	7.4	.5	10	873	879	1.20	.59	.00	.01	.31
MAR											
29...	54	2.6	.1	6.4	162	165	.22	24.5	.35	.66	.84
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	330	9.5	.3	8.7	779	715	.97	6.76	.06	.01	.34
MAY											
12...	320	9.7	.4	6.4	1120	--	1.52	5.14	.01	.00	.82
JUN											
15...	290	4.9	.5	7.1	772	742	1.01	.92	.01	.01	.67
30...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06342040 SQUARE BUTTE CREEK NEAR HANNOVER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)
OCT											
18...	.88	.89	3.9	.04	.05	--	--	--	--	--	--
NOV											
09...	.32	.32	1.4	.04	.03	30	--	1	--	--	100
MAR											
29...	1.5	1.9	8.2	.18	.15	0	1	1	17	100	0
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	.35	.41	1.8	.04	.02	--	--	--	--	--	--
MAY											
12...	.82	.83	3.7	.07	.05	--	--	--	--	--	--
JUN											
15...	.68	.69	3.1	.04	.06	10	2	2	4	200	300
30...	--	--	--	--	--	--	--	--	--	--	--

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT										
18...	--	--	--	--	210	--	--	--	--	--
NOV										
09...	--	--	0	--	190	--	1	--	--	8
MAR										
29...	18	10	0	10	70	2	--	1	0	0
APR										
06...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	180	--	--	--	--	--
MAY										
12...	--	--	--	--	280	--	--	--	--	--
JUN										
15...	100	5	0	1	270	1	1	0	10	10
30...	--	--	--	--	--	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)
OCT												
18...	--	--	--	--	--	--	--	50	--	--	--	--
NOV												
09...	--	--	0	--	--	3	--	40	--	6	--	--
MAR												
29...	40	1	2	10	4	2	6	100	--	--	20	6
APR												
19...	--	--	--	--	--	--	--	60	--	--	--	--
MAY												
12...	--	--	--	--	--	--	--	30	--	--	--	--
JUN												
15...	5	2	0	0	7	5	20	30	3	0	0	60

DATE	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
09...	60	--	8	--	--	.0	--	--	--	1	--	0
MAR												
29...	6	100	100	19000	.0	.0	.04	4	1	1	2	3
JUN												
15...	60	20	0	2000	.0	.0	.08	5	8	0	3	0

06342040 SQUARE BUTTE CREEK NEAR HANNOVER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	0	--	.6	--	10	--	--	--	--	--
MAR 29...	20	0	0	0	1.0	10	0	260	<1.7	<.4	10	.5
APR 19...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 12...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 15...	14	0	0	0	.2	20	10	27	--	-4	--	--

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT 18...	8.5	.4	12	.01	--	--	--
NOV 09...	7.8	.3	50	.03	--	--	--
MAR 29...	8.6	1.1	16	2.4	--	--	--
APR 06...	--	--	9	.29	18	23	43
19...	7.8	.7	--	--	--	--	--
MAY 12...	14	.4	22	.10	29	40	65
JUN 15...	14	.3	8	.01	28	36	57
30...	--	--	5	.00	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT 18...	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--
MAR 29...	--	--	--	--	--	--	--
APR 06...	60	63	68	83	96	100	--
19...	--	--	--	--	--	--	--
MAY 12...	77	79	84	90	97	98	100
JUN 15...	72	76	82	89	92	98	100
30...	--	--	--	--	--	--	--

06342040 SQUARE BUTTE CREEK NEAR HANNOVER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JUNE 1978

DATE	OCT 18,77		NOV 9,77		MAR 29,78		APR 18,78		MAY 12,78		JUN 15,78	
TIME	1000		1400		1145		1230		1345		1500	
TOTAL CELLS/ML	1300		54		82		1400		630		1900	
DIVERSITY: DIVISION	1.4		1.2		1.6		1.1		1.3		1.1	
.CLASS	1.4		1.2		1.6		1.1		1.3		1.1	
..ORDER	1.6		1.2		1.6		1.6		1.8		1.2	
...FAMILY	1.8		2.2		1.9		2.4		2.1		1.4	
....GENUS	1.8		2.2		1.9		2.7		2.2		1.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	--	-	43	2
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	520#	27
....KIRCHNERIELLA	--	-	--	-	--	-	28	2	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	85	6	--	-	--	-
...SCENEDESMACEAE												
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-	57	3
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	--	-	57	4	--	-	--	-
....CHLAMYDOMONAS	58	5	--	-	27#	33	540#	39	55	9	29	2
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	58	5	--	-	--	-	28	2	--	-	--	-
....MELOSIRA	--	-	--	-	--	-	--	-	190#	30	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	14	2	14	1
...CYMBELLACEAE												
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-	29	2
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	14	2	--	-
....SYNEDRA	300#	23	6	11	--	-	140	10	41	7	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	230#	16	14	2	--	-
...NAVICULACEAE												
....NAVICULA	17	1	18#	33	14#	17	140	10	14	2	--	-
...NITZSCHIACEAE												
....NITZSCHIA	33	3	12#	22	14#	17	110	8	14	2	29	2
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	8	1	--	-	--	-	--	-	--	-	--	-
....RHODOMONAS	8	1	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	25	2	12#	22	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	270#	43	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	760#	59	--	-	--	-	--	-	--	-	1200#	62
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	17	1	6	11	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	27#	33	28	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY					
12...	24	.070	.000	.394	.236

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE BELOW CENTER, ND

LOCATION.--Lat 47°06'08", long 101°15'22", in SW¼NW¼SW¼ sec.19, T.142 N., R.83 W., Oliver County, Hydrologic Unit 10130101, on left bank 30 ft (9 m) downstream from bridge on county road 2 mi (3.2 km) southeast of Center, and 2 mi (3.2 km) upstream from Nelson Lake.

DRAINAGE AREA.--75.8 mi² (196 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,930 ft (588 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 700 ft³/s (19.8 m³/s) Mar. 26, only peak above base of 70 ft³/s (1.98 m³/s); maximum gage height, 9.23 ft (2.813 m) Mar. 28, ice jam, from floodmark; minimum observed discharge, 0.01 ft³/s (0.0003 m³/s) Mar. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	1.1	1.1	1.3	.97	.40	120	5.9	3.1	4.0	.92	.38
2	2.8	1.2	1.1	1.3	.97	.30	80	5.9	3.6	4.0	.85	.43
3	2.7	1.2	1.1	1.2	.97	.20	54	5.2	3.6	3.6	.80	.49
4	2.5	1.1	1.2	1.2	.97	.20	57	4.6	3.2	3.4	.73	.67
5	2.7	1.0	1.2	1.2	.90	.10	60	4.3	3.4	3.5	.76	.65
6	2.7	.97	1.1	1.2	.90	.05	62	4.3	3.8	3.1	.84	.81
7	3.0	.97	1.1	1.2	.90	.01	49	6.2	4.3	2.8	.70	.65
8	4.9	.97	1.1	1.1	.90	.20	36	13	3.6	2.6	.65	.62
9	4.9	.90	1.1	1.1	.90	.30	33	11	2.3	2.4	.58	.54
10	4.6	.90	1.0	1.2	.90	.40	30	15	1.8	2.2	.58	.55
11	3.8	.90	1.1	1.2	.83	.70	26	13	2.6	2.0	.60	1.0
12	3.6	.83	1.1	1.2	.83	1.0	24	10	4.8	1.8	.51	2.3
13	3.4	.72	1.1	1.3	.83	.90	22	6.8	2.7	1.7	.47	1.3
14	4.3	.90	1.2	1.3	.72	.70	19	5.0	1.6	1.6	.45	1.1
15	4.3	1.3	1.2	1.3	.72	.60	17	3.5	1.9	1.5	.39	1.4
16	3.8	1.3	1.2	1.3	.72	.50	16	3.1	2.1	1.4	.30	1.4
17	3.2	1.2	1.3	1.3	.77	.50	15	2.6	1.0	1.4	.24	1.7
18	2.8	1.2	1.3	1.3	.72	.70	16	2.4	1.8	1.4	.19	2.2
19	1.9	1.2	1.2	1.3	.72	2.0	14	2.3	1.4	2.3	.24	1.9
20	2.2	1.0	1.2	1.3	.66	5.0	11	2.2	1.8	3.0	.27	1.7
21	2.0	.90	1.1	1.3	.72	10	11	1.7	2.2	2.9	.31	1.6
22	2.0	.90	1.1	1.3	.72	30	9.0	1.4	2.2	2.6	.32	1.6
23	2.2	.80	1.0	1.3	.77	340	10	3.3	2.2	2.2	.31	1.3
24	1.9	.80	1.0	1.2	.77	180	9.5	6.4	2.3	1.7	.24	1.2
25	1.7	.80	1.0	1.2	.66	400	8.5	4.7	2.3	1.4	.18	1.3
26	1.4	.80	1.0	1.1	.60	550	8.5	4.5	2.3	1.1	.20	1.3
27	1.2	.80	1.0	1.1	.55	550	8.0	5.3	2.4	.91	.47	1.2
28	1.0	.90	1.1	1.0	.50	350	7.1	3.8	2.4	.94	.42	1.3
29	.97	1.0	1.2	.97	---	137	6.7	3.2	3.0	.91	.35	1.2
30	.90	1.1	1.2	.97	---	261	5.9	2.9	3.4	.89	.30	1.1
31	1.1	---	1.2	.97	---	193	---	3.1	---	.89	.34	---
TOTAL	83.17	29.66	34.9	37.21	22.09	3015.76	847.2	166.6	79.1	65.94	14.47	35.09
MEAN	2.68	.99	1.13	1.20	.79	97.3	28.2	5.37	2.64	2.13	.47	1.17
MAX	4.9	1.3	1.3	1.3	.97	550	120	15	4.8	4.0	.92	2.3
MIN	.90	.72	1.0	.97	.50	.01	5.9	1.4	1.0	.89	.18	.38
AC-FT	165	59	69	74	44	5980	1680	330	157	131	29	70

WTR YR 1978 TOTAL 4431.19 MEAN 12.1 MAX 550 MIN .01 AC-FT 8790

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT 18...	0930	2.8	880	8.5	18.0	7.5	11.6	104	K21	K400	230
NOV 09...	1600	.94	1015	8.3	3.5	4.0	10.6	84	380	300	270
DEC 06...	1200	1.1	1220	7.8	-20.0	1.0	7.6	58	57	91	260
JAN 03...	0935	1.3	1240	7.8	-9.0	.0	8.1	60	71	K140	310
FEB 14...	1525	.73	1220	7.5	-12.0	.0	7.8	57	25	21	320
MAR 30...	1315	295	215	7.9	20.0	2.0	10.3	82	190	K16000	68
APR 06...	1430	61	--	--	11.0	8.0	--	--	--	--	--
18...	1100	16	--	--	--	6.5	--	--	--	--	--
19...	0915	14	850	8.3	-.5	4.5	11.1	92	<1	K140	260
MAY 12...	0845	9.9	1050	--	12.5	14.0	9.6	99	50	64	310
JUN 21...	1130	2.2	1100	8.1	25.0	19.0	7.7	90	190	360	320
28...	1500	2.4	--	--	30.0	26.0	--	--	--	--	--
JUL 26...	1200	1.2	980	8.2	26.0	24.0	8.9	113	270	120	250
AUG 09...	1115	.61	110	8.2	27.0	23.0	7.6	94	150	300	280
SEP 17...	1000	1.8	920	8.1	14.5	15.0	6.8	72	120	180	200

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT 18...	0	48	26	120	53	3.5	6.5	320	22	283	1.8
NOV 09...	0	57	30	130	51	3.5	7.2	424	0	348	3.4
DEC 06...	0	49	33	170	58	4.6	6.1	531	0	435	13
JAN 03...	0	69	33	160	52	4.0	6.0	524	0	430	13
FEB 14...	0	72	34	160	52	3.9	5.3	531	0	435	27
MAR 30...	1	16	6.7	14	29	.7	6.0	82	0	67	1.7
APR 06...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
19...	11	58	28	89	42	2.4	6.4	304	0	249	2.4
MAY 12...	--	65	37	130	47	3.2	8.0	--	--	--	--
JUN 21...	0	63	39	150	50	3.7	5.6	432	0	354	5.5
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	0	46	32	150	56	4.2	5.9	425	0	348	4.3
AUG 09...	0	52	36	160	55	4.2	6.2	465	0	381	4.7
SEP 17...	0	39	26	160	62	4.9	6.8	455	0	373	5.8

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 18...	160	5.6	.3	8.5	557	555	.75	4.2	.01	.05	.95
NOV 09...	200	7.2	.2	8.5	656	650	.88	1.6	.21	.04	.86
DEC 06...	230	7.1	.2	17	806	774	1.05	2.3	.87	.29	.47
JAN 03...	240	7.1	.3	21	775	795	1.08	2.7	1.4	.45	.32
FEB 14...	210	7.5	.3	23	765	774	1.05	1.5	2.7	.38	.27
MAR 30...	38	1.9	.1	5.6	137	129	.18	103	.41	.65	2.1
APR 06...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
19...	180	5.2	.2	9.4	539	526	.72	19.9	1.1	.13	.40
MAY 12...	240	5.7	.2	5.1	702	--	.95	18.8	.63	.03	.70
JUN 21...	240	5.3	.2	7.2	739	724	.98	4.3	.72	.04	.85
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	190	5.3	.3	6.9	650	646	.88	2.0	.09	.10	1.1
AUG 09...	220	6.3	.3	7.0	714	718	.98	1.1	.43	.12	.69
SEP 17...	180	5.4	.3	9.8	638	652	.89	3.1	.55	.09	.79

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 18...	1.0	1.0	4.5	.06	.01	--	--	--	--	--	--
NOV 09...	.90	1.1	4.9	.06	.00	0	--	1	--	--	600
DEC 06...	.76	1.6	7.2	.03	.01	--	--	--	--	--	--
JAN 03...	.77	2.2	9.6	.05	.02	--	--	--	--	--	--
FEB 14...	.65	3.4	15	.03	.01	--	--	--	--	--	--
MAR 30...	2.7	3.1	14	.12	.07	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
19...	.53	1.6	7.2	.07	.02	0	2	1	7	100	100
MAY 12...	.73	1.4	6.0	.05	.01	--	--	--	--	--	--
JUN 21...	.89	1.6	7.1	.05	.01	0	2	2	9	200	300
28...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	1.2	1.3	5.7	.04	.01	--	--	--	--	--	--
AUG 09...	.81	1.2	5.5	.02	.00	0	--	2	--	--	200
SEP 17...	.88	1.4	6.3	.09	.03	--	--	--	--	--	--

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT 18...	--	--	--	--	230	--	--	--	--	--
NOV 09...	--	--	0	--	260	--	1	--	--	0
DEC 06...	--	--	--	--	300	--	--	--	--	--
JAN 03...	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	250	--	--	--	--	--
MAR 30...	--	--	--	--	70	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
19...	60	0	0	0	200	1	2	0	0	0
MAY 12...	--	--	--	--	250	--	--	--	--	--
JUN 21...	70	5	0	0	310	1	0	0	5	0
28...	--	--	--	--	--	--	--	--	--	--
JUL 26...	--	--	--	--	310	--	--	--	--	--
AUG 09...	--	--	0	--	320	--	1	--	--	0
SEP 17...	--	--	--	--	290	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)
OCT 18...	--	--	--	--	--	--	--	210	--	--
NOV 09...	--	--	0	--	--	0	--	40	5	--
DEC 06...	--	--	--	--	--	--	--	40	--	--
FEB 14...	--	--	--	--	--	--	--	60	--	--
MAR 30...	--	--	--	--	--	--	--	130	--	--
APR 19...	4	1	0	5	1	2	7	40	--	10
MAY 12...	--	--	--	--	--	--	--	30	--	--
JUN 21...	0	0	0	8	5	2	8	30	--	0
JUL 26...	--	--	--	--	--	--	--	50	--	--
AUG 09...	--	--	1	--	--	10	--	40	5	--
SEP 17...	--	--	--	--	--	--	--	80	--	--

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)
OCT 18...	--	--	--	--	--	--	--	--	--
NOV 09...	--	40	--	70	--	--	.0	--	--
APR 19...	30	30	120	120	360	.0	.0	.06	3
MAY 12...	--	--	--	--	--	--	--	--	--
JUN 21...	50	50	110	20	560	.0	.0	.04	3
JUL 26...	--	--	--	--	--	--	--	--	--
AUG 09...	--	50	--	60	--	--	.0	--	--
SEP 17...	--	--	--	--	--	--	--	--	--

DATE	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)
OCT 18...	--	--	--	--	--	--	--	--	--
NOV 09...	--	2	--	1	--	--	0	--	.7
APR 19...	1	0	18	9	20	0	0	0	.0
MAY 12...	--	--	--	--	--	--	--	--	--
JUN 21...	6	0	4	0	12	0	0	0	.2
JUL 26...	--	--	--	--	--	--	--	--	--
AUG 09...	--	3	--	4	--	--	0	--	.0
SEP 17...	--	--	--	--	--	--	--	--	--

DATE	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT 18...	--	--	--	--	--	--	--	--	--
NOV 09...	--	10	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--
MAR 30...	--	--	--	--	--	--	--	--	--
APR 19...	10	10	32	<5.4	<.4	6.2	1.0	--	--
MAY 12...	--	--	--	--	--	--	--	--	--
JUN 21...	40	10	24	--	--	--	--	--	--
JUL 26...	--	--	--	--	--	--	--	--	--
AUG 09...	--	10	--	--	--	--	--	--	--
SEP 17...	--	--	--	<6.2	.8	9.6	.8	8.9	.8

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
18...	9.6	1.6	32	.24	--	--	--
NOV							
09...	7.5	1.1	110	.28	--	--	--
DEC							
06...	6.7	.6	51	.15	--	--	--
JAN							
03...	--	--	22	.08	--	--	--
FEB							
14...	5.2	.5	40	.08	--	--	--
MAR							
30...	7.5	5.0	169	135	2	5	10
APR							
06...	--	--	28	4.6	9	16	42
18...	--	--	37	1.6	--	--	--
19...	7.5	.9	--	--	--	--	--
MAY							
12...	8.3	.8	39	1.0	21	41	70
JUN							
21...	10	.9	28	.17	12	18	47
28...	--	--	37	.24	--	--	--
JUL							
26...	10	1.8	29	.09	--	--	--
AUG							
09...	9.4	.9	37	.06	--	--	--
SEP							
17...	12	2.5	27	.13	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DI'M. % FINER THAN 64.0 MM (80174)
OCT							
18...	--	--	--	--	--	--	--
NOV							
09...	--	--	--	--	--	--	--
DEC							
06...	--	--	--	--	--	--	--
JAN							
03...	--	--	--	--	--	--	--
FEB							
14...	--	--	--	--	--	--	--
MAR							
30...	35	55	60	76	9	100	--
APR							
06...	68	73	78	84	86	86	100
18...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
MAY							
12...	86	91	96	99	100	--	--
JUN							
21...	70	78	83	90	96	99	100
28...	--	--	--	--	--	--	--
JUL							
26...	--	--	--	--	--	--	--
AUG							
09...	--	--	--	--	--	--	--
SEP							
17...	--	--	--	--	--	--	--

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 10,77		NOV 9,77		DEC 6,77		JAN 3,78		FEB 14,78		MAR 30,78	
TIME	0930		1600		1200		0935		1525		1315	
TOTAL CELLS/ML	6400		780		170		44		67		8100	
DIVERSITY: DIVISION	1.6		1.5		1.1		0.0		1.0		0.7	
.CLASS	1.6		1.5		1.1		0.0		1.0		0.7	
..ORDER	2.2		1.5		1.5		0.9		1.0		0.7	
...FAMILY	2.4		2.3		2.2		1.6		1.6		1.2	
....GENUS	2.8		2.3		0.0		1.6		1.6		1.3	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	56	7	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	150	2	110	14	6	4	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	400	6	110	14	--	-	--	-	--	-	--	-
....TETRASTRUM	200	3	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	810	13	--	-	--	-	--	-	--	-	*	0
...VOLVOCACEAE												
....PANDORINA	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	2700#	43	--	-	12	7	--	-	--	-	*	0
....MELOSIRA	--	-	--	-	--	-	13#	29	--	-	--	-
....STEPHANODISCUS	300	5	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	*	0
....COCCONEIS	--	-	--	-	6	4	--	-	--	-	240	3
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-	*	0
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-	75	1
...DIATOMACEAE												
....DIATOMA	--	-	--	-	55#	32	--	-	--	-	75	1
...FRAGILARIACEAE												
....FRAGILARIA	100	2	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	200	3	--	-	--	-	--	-	--	-	*	0
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	6	8	56	1
...MERIDIONACEAE												
....MERIDION	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....ANOMOEONEIS	--	-	56	7	--	-	--	-	--	-	--	-
....CALONEIS	--	-	--	-	--	-	--	-	--	-	75	1
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	94	1
....NAVICULA	--	-	--	-	6	4	19#	43	6	8	470	6
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	250	4	110	14	24	14	13#	29	22#	33	130	2
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 18,77		NOV 9,77		DEC 6,77		JAN 3,78		FEB 14,78		MAR 30,78	
TIME	0930		1600		1200		0935		1525		1315	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	330#	43	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	810	13	--	-	--	-	--	-	--	-	150	2
...OSCILLATORIACEAE	--	-	--	-	61#	36	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	33#	50	6600#	81
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	150	2	--	-	--	-	--	-	--	-	--	-
....PHACUS	100	2	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	150	2	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
*. - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 19,78	MAY 12,78	JUN 21,78	JUL 26,78	AUG 9,78	SEP 17,78
TIME	0915	0845	1130	1200	1115	1000
TOTAL CELLS/ML	560	9000	4800	7700	6200	1600
DIVERSITY: DIVISION	0.6	1.7	1.8	2.1	1.0	1.4
.CLASS	0.6	1.7	1.8	2.1	1.1	1.4
..ORDER	1.4	2.0	1.9	2.7	1.8	1.7
...FAMILY	2.6	2.4	2.0	3.3	2.7	2.8
....GENUS	2.7	2.4	2.5	3.4	3.1	3.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	540	9	43	3
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	150	2	490	10	91	1	--	-	43	3
....CHODATELLA	--	-	--	-	--	-	91	1	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	370	6	14	1
....OOCYSTIS	--	-	--	-	75	2	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	1500#	32	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	34	1	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	--	-	--	-	130	2	58	4
....SCENEDESMUS	--	-	--	-	75	2	630	8	2200#	35	550#	35
....TETRASTRUM	--	-	--	-	--	-	180	2	270	4	120	7
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	81	15	--	-	--	-	1100	14	100	2	--	-
...VOLVOCACEAE												
....PANDORINA	--	-	--	-	--	-	1400#	19	540	9	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	220#	39	1700#	19	190	4	590	8	870	14	160	10
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	110	2	--	-	--	-	--	-
....COCCONEIS	14	2	--	-	--	-	91	1	67	1	14	1
....RHOICOSPHENIA	14	2	--	-	38	1	--	-	--	-	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	--	-	14	1
....CYMBELLA	--	-	--	-	--	-	45	1	--	-	--	-
....EPITHEMIA	14	2	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	130	2	--	-
....SYNEDRA	41	7	930	10	--	-	360	5	570	9	29	2
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	77	1	--	-	--	-	--	-	--	-
...MERIDIONACEAE												
....MERIDION	14	2	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....ANOMOEONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....CALONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	77	1	--	-	--	-	--	-	--	-
....NAVICULA	41	7	150	2	--	-	230	3	67	1	170	11
....PINNULARIA	14	2	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	95#	17	460	5	75	2	--	-	100	2	100	6
...SURIRELLACEAE												
....SURIRELLA	14	2	77	1	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	100	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	590	8	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

06342200 SQUARE BUTTE CREEK ABOVE NELSON LAKE NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 19,78		MAY 12,78		JUN 21,78		JUL 26,78		AUG 9,78		SEP 17,78	
TIME	0915		0845		1130		1200		1115		1000	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	87	6
....ANACYSTIS	--	-	2200#	24	980#	20	1400#	19	--	-	160	10
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	91	1	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	3200#	36	1200#	26	540	7	130	2	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	140	2	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	45	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY 12...	24	13.5	2.04	15.0	9.04
AUG 09...	14	2.21	.770	5.51	4.02

06342230 HAGEL CREEK NEAR CENTER, ND

LOCATION.--Lat 47°03'58", long 101°14'11", in SE¼NE¼NE¼ sec.6, T.141 N., R.83 W., Oliver County, Hydrologic Unit 10130101, on right bank 1,200 ft (366 m) upstream from bridge on county road, 0.8 mi (1.3 km) upstream from Nelson Lake, 1 mi (1.6 km) west of Milton R. Young Powerplant, and 4.5 mi (7.2 km) southeast of Center.

DRAINAGE AREA.--45.6 mi^2 (118 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,950 ft (594 m), from topographic map.

REMARKS.--Records fair except those for period October to March and months of June and July, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 26	--	280	7.93	a,b*6.49	1.978	June 29	2200	c291	8.24	4.31	1.314

No flow Aug. 9 - Sept. 30.

a - Backwater from ice.
b - From floodmark.
c - From rating extended above 71 ft^3/s (2.01 m^3/s).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	.36	.30	.20	.10	.01	109	3.4	1.1	28	.03	.00
2	2.1	.32	.30	.20	.10	.01	79	3.1	3.3	4.7	.03	.00
3	2.0	.28	.30	.20	.10	.01	81	2.9	12	1.9	.02	.00
4	2.2	.24	.30	.20	.10	.01	80	2.9	13	1.0	.02	.00
5	2.5	.22	.30	.20	.10	.01	77	2.8	1.4	.69	.01	.00
6	2.3	.19	.20	.20	.10	.01	73	2.6	.81	.66	.01	.00
7	3.1	.27	.20	.20	.05	.01	65	3.2	.98	.38	.01	.00
8	5.3	.21	.20	.20	.05	.01	58	8.2	1.1	.24	.01	.00
9	5.2	.21	.10	.20	.05	.10	55	6.7	.85	.42	.00	.00
10	3.8	.20	.10	.20	.05	.50	52	4.6	.85	.56	.00	.00
11	2.7	.18	.10	.20	.05	1.0	48	3.8	.85	.40	.00	.00
12	2.1	.18	.30	.20	.05	2.0	45	3.8	.77	.47	.00	.00
13	1.8	.19	.60	.10	.05	4.0	42	4.5	.66	.56	.00	.00
14	1.5	.20	.70	.10	.05	10	37	3.7	.53	.56	.00	.00
15	1.4	.21	.73	.10	.05	9.0	32	3.0	.56	.47	.00	.00
16	1.4	.23	.73	.10	.05	8.0	28	2.5	.62	.40	.00	.00
17	1.2	.20	.62	.10	.05	7.0	24	2.1	.59	.32	.00	.00
18	1.1	.20	.50	.10	.05	10	20	1.9	.69	.18	.00	.00
19	1.0	.20	.40	.10	.05	20	15	1.8	.56	.26	.00	.00
20	.86	.20	.40	.10	.05	30	12	1.8	.36	.28	.00	.00
21	.84	.20	.40	.10	.02	50	9.8	1.8	.34	.28	.00	.00
22	.80	.20	.40	.10	.02	80	8.5	1.7	.32	.32	.00	.00
23	.85	.10	.40	.10	.02	110	8.8	1.5	.30	.28	.00	.00
24	.76	.10	.30	.10	.02	150	7.8	1.4	.24	.21	.00	.00
25	.66	.10	.30	.10	.02	200	6.5	1.4	.21	.12	.00	.00
26	.59	.10	.30	.10	.02	250	5.7	1.5	.17	.08	.00	.00
27	.53	.20	.30	.10	.02	240	5.0	1.4	.10	.07	.00	.00
28	.50	.20	.30	.10	.02	200	4.9	1.3	1.5	.07	.00	.00
29	.43	.30	.20	.10	---	180	4.6	1.7	47	.07	.00	.00
30	.40	.30	.20	.10	---	170	4.0	1.7	119	.05	.00	.00
31	.36	---	.20	.10	---	161	---	1.8	---	.04	.00	---
TOTAL	52.48	6.29	10.68	4.30	1.46	1692.68	1097.6	86.5	210.76	44.24	.14	.00
MEAN	1.69	.21	.34	.14	.052	61.1	36.6	2.79	7.03	1.43	.005	.000
MAX	5.3	.36	.73	.20	.10	250	109	8.2	119	28	.03	.00
MIN	.36	.10	.10	.10	.02	.01	4.0	1.3	.10	.04	.00	.00
AC-FT	104	12	21	8.5	2.9	3750	2180	172	418	88	.3	.00

WTR YR 1978 TOTAL 3407.13 MEAN 9.33 MAX 250 MIN .00 AC-FT 6760

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
18...	1330	1.1	1200	8.2	18.0	9.5	10.3	97	K11	88	210
NOV											
09...	1200	.21	1160	8.4	6.5	3.0	11.6	91	K8	60	190
DEC											
16...	1000	.73	1600	7.8	-7.0	.0	10.0	73	K3	100	260
JAN											
04...	1030	.23	1600	7.8	-13.0	.5	7.0	52	K2	120	270
FEB											
27...	1540	.02	1620	7.4	-3.0	.0	--	--	K1	120	340
MAR											
29...	1530	164	--	--	18.0	1.0	--	--	--	--	--
30...	0930	170	178	7.0	18.0	1.0	11.8	89	--	--	46
APR											
06...	1630	71	--	--	8.5	8.0	--	--	--	--	--
18...	1100	22	535	8.2	7.0	4.5	11.4	94	<1	K180	140
MAY											
11...	1130	3.7	1440	--	25.0	16.0	9.5	103	173	125	350
JUN											
20...	1015	.36	1280	8.2	17.5	18.0	6.4	73	K13	175	250
29...	1730	5.8	--	--	24.0	23.5	--	--	--	--	--
JUL											
25...	1330	.12	1260	8.2	30.0	25.0	5.2	67	K2500	K3200	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
18...	0	38	27	190	65	5.8	10	370	0	303	3.7
NOV											
09...	0	33	26	200	68	6.3	10	487	8	413	3.2
DEC											
16...	0	43	38	290	69	7.8	13	645	0	529	16
JAN											
04...	0	47	36	280	69	7.5	11	670	0	549	17
FEB											
27...	0	65	42	260	62	6.2	8.6	757	0	621	48
MAR											
29...	--	--	--	--	--	--	--	--	--	--	--
30...	0	11	4.6	18	43	1.2	5.0	62	0	51	9.9
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
18...	0	30	15	62	48	2.3	6.2	171	0	140	1.7
MAY											
11...	--	68	44	220	57	5.1	9.0	--	--	--	--
JUN											
20...	0	40	37	230	66	6.3	6.3	407	0	334	4.1
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
25...	0	44	37	210	63	5.6	7.4	390	0	320	3.9

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 18...	280	5.1	.2	7.1	746	740	1.01	2.20	.05	.06	1.0
NOV 09...	220	5.2	.2	2.0	762	745	1.01	.42	.01	.04	1.3
DEC 16...	320	6.5	.2	8.0	1050	1040	1.41	2.05	.19	.25	1.1
JAN 04...	320	6.6	.3	9.6	1050	1040	1.41	.65	.33	.29	2.5
FEB 27...	260	6.6	.2	13	1040	1030	1.40	.06	.05	.46	.84
MAR 29...	--	--	--	--	--	--	--	--	--	--	--
30...	32	1.6	.0	4.1	112	107	.15	49.1	.46	.34	1.3
APR 06...	--	--	--	--	--	--	--	--	--	--	--
18...	120	2.1	.1	5.3	351	325	.44	19.3	.58	.18	.57
MAY 11...	460	4.4	.1	3.7	1030	--	1.40	10.3	.01	.00	1.2
JUN 20...	380	2.8	.1	1.2	908	899	1.22	.87	.00	.01	1.3
29...	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	360	3.8	.2	1.3	866	856	1.16	.28	.01	.01	1.5

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 18...	1.1	1.2	5.1	.10	.08	--	--	--	--	--	--
NOV 09...	1.3	1.3	5.8	.08	.04	0	--	2	--	--	500
DEC 16...	1.3	1.5	6.6	.07	.06	--	--	--	--	--	--
JAN 04...	2.8	3.1	14	.09	.09	--	--	--	--	--	--
FEB 27...	1.3	1.4	6.0	.29	.10	--	--	--	--	--	--
MAR 29...	--	--	--	--	--	--	--	--	--	--	--
30...	1.6	2.1	9.1	.26	.12	--	--	--	--	--	--
APR 06...	--	--	--	--	--	--	--	--	--	--	--
18...	.75	1.3	5.9	.13	.07	0	1	1	7	100	0
MAY 11...	1.2	1.2	5.4	.08	.02	--	--	--	--	--	--
JUN 20...	1.3	1.3	5.8	.04	.02	0	4	2	8	200	200
29...	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	1.5	1.5	6.7	.11	.02	--	--	--	--	--	--

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT										
18...	--	--	--	--	410	--	--	--	--	--
NOV										
09...	--	--	0	--	380	--	0	--	--	4
DEC										
16...	--	--	--	--	490	--	--	--	--	--
JAN										
04...	--	--	--	--	430	--	--	--	--	--
FEB										
27...	--	--	--	--	360	--	--	--	--	--
MAR										
29...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	80	--	--	--	--	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
18...	70	0	0	1	170	--	--	0	10	0
MAY										
11...	--	--	--	--	590	--	--	--	--	--
JUN										
20...	210	0	0	0	510	0	1	0	10	0
29...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	--	--	--	--	560	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)
OCT												
18...	--	--	--	--	--	--	--	80	--	--	--	--
NOV												
09...	--	--	0	--	--	1	--	60	--	1	--	--
DEC												
16...	--	--	--	--	--	--	--	110	--	--	--	--
JAN												
04...	--	--	--	--	--	--	--	130	--	--	--	--
FEB												
27...	--	--	--	--	--	--	--	700	--	--	--	--
MAR												
30...	--	--	--	--	--	--	--	130	--	--	--	--
APR												
18...	6	1	2	7	2	3	12	70	--	--	16	20
MAY												
11...	--	--	--	--	--	--	--	50	--	--	--	--
JUN												
20...	7	1	0	8	7	5	19	50	6	1	10	60
JUL												
25...	--	--	--	--	--	--	--	70	--	--	--	--

DATE	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
09...	50	--	0	--	--	.0	--	--	--	1	--	2
APR												
18...	20	60	40	430	.0	.0	.05	1	0	1	18	8
MAY												
11...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
20...	50	70	30	350	.1	.0	.03	9	3	2	7	0
JUL												
25...	--	--	--	--	--	--	--	--	--	--	--	--

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
09...	--	--	0	--	1.4	--	10	--	--	--	--	--
APR												
18...	35	0	0	0	1.0	10	10	38	<1.6	1.1	9.8	1.4
MAY												
11...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
20...	25	0	1	0	.2	40	10	42	--	--	--	--
JUL												
25...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
18...	15	.9	176	.52	--	--	--
NOV							
09...	17	--	6	.00	--	--	--
DEC							
16...	18	.3	24	.05	--	--	--
JAN							
04...	16	.6	11	.01	--	--	--
FEB							
27...	10	1.1	20	.00	--	--	--
MAR							
29...	--	--	139	62	--	--	--
30...	8.8	2.2	--	--	--	--	--
APR							
06...	--	--	26	5.0	6	8	10
18...	11	1.4	22	1.3	--	--	--
MAY							
11...	22	2.3	22	.22	--	--	--
JUN							
20...	18	1.1	26	.03	42	55	70
29...	--	--	80	1.3	--	--	--
JUL							
25...	18	1.3	96	.03	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
APR							
06...	21	46	78	96	99	100	--
18...	--	--	--	--	--	--	--
MAY							
11...	--	--	--	--	--	--	--
JUN							
20...	80	81	86	90	93	94	100
29...	--	--	--	--	--	--	--
JUL							
25...	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
MAY					
11...	23	.410	.000	.394	.079
JUL					
25...	30	3.43	2.04	3.15	1.01

SQUARE BUTTE CREEK BASIN

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	OCT 18,77	NOV 9,77	DEC 15,77	JAN 4,78	FEB 27,78
TIME	1330	1200	1000	1030	1540
TOTAL CELLS/ML	8900	26000	210	180	1300
DIVERSITY: DIVISION	1.2	0.0	0.0	0.2	0.7
.CLASS	1.2	0.0	0.0	0.2	0.7
..ORDER	1.6	0.0	0.0	0.2	0.9
...FAMILY	2.0	0.2	0.0	0.2	1.0
....GENUS	2.9	0.4	0.0	0.2	1.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....EUTETRAMORUS	1700#	19	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	2300#	26	25000#	95	--	-	--	-	86	7
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	950	11	470	2	--	-	--	-	21	2
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	200	2	--	-	--	-	--	-	--	-
....SCENEDESMUS	550	6	950	4	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	600	7	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	1100	12	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....SYNEDRA	--	-	--	-	--	-	6	3	21	2
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	100	1	--	-	--	-	--	-	21	2
...NITZSCHIACEAE										
....NITZSCHIA	50	1	--	-	--	-	--	-	21	2
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	50	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	43	3
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	170#	97	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	210#	100	--	-	1100#	84
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....GOMPHOSPHAERIA	1200	14	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SQUARE BUTTE CREEK BASIN

06342230 HAGEL CREEK NEAR CENTER, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	MAR 30,78	APR 18,78	MAY 11,78	JUN 20,78	JUL 25,78
TIME	0930	1100	1130	1015	1330
TOTAL CELLS/ML	500	18000	22000	3000	1800
DIVERSITY: DIVISION	1.1	0.9	0.6	1.3	1.5
.CLASS	1.1	0.9	0.6	1.3	1.5
..ORDER	1.3	1.2	0.7	1.5	1.6
...FAMILY	2.4	1.6	1.4	2.1	1.8
....GENUS	2.4	1.7	2.2	2.8	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCUCCALES										
...OOCYSTACEAE										
....EUTETRAMORUS	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....CUELASTRUM	--	-	820	4	1400	6	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	540	3	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	540	3	12000#	55	110	4	57	3
....DICTYOSPHAERIUM	--	-	--	-	2600	12	--	-	--	-
....KIRCHNERIELLA	--	-	410	2	1200	6	--	-	--	-
....OUCYSTIS	--	-	--	-	--	-	22	1	57	3
....SELENASTRUM	--	-	540	3	--	-	960#	32	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	14	1
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	540	3	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	680	3	480#	16	140	8
....TETRASTRUM	--	-	--	-	1400	6	350	12	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	1900	10	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....STAURASTRUM	--	-	--	-	--	-	44	1	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	27	5	13000#	70	1500	7	44	1	85	5
..PENNALES										
...ACHNANTHACEAE										
....RHOICUSPHENIA	--	-	--	-	--	-	22	1	--	-
...DIATUMACEAE										
....DIATOMA	--	-	--	-	--	-	22	1	--	-
...FRAGILARIACEAE										
....SYNEDRA	41	8	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	27	5	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	54	11	--	-	170	1	--	-	99	6
...NITZSCHIACEAE										
....NITZSCHIA	14	3	140	1	--	-	--	-	14	1
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTUMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHRUOMONAS	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	--	-	--	-	--	-	170	6	170	10
..HORMOGUNALES										
...NOSTOCACEAE										
....ANABAENA	190#	38	--	-	--	-	22	1	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	140#	27	--	-	--	-	--	-	--	-
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	14	3	--	-	--	-	66	2	85	5
....PHACUS	--	-	--	-	--	-	22	1	28	2
....TRACHELOMONAS	--	-	--	-	850	4	660#	22	1000#	57

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06342260 SQUARE BUTTE CREEK BELOW CENTER, ND

LOCATION.--Lat 47°03'25", long 101°11'35", in SE¼ sec.4, T.141 N., R.83 W., Oliver County, Hydrologic Unit 10130101, on right bank at southeast corner of farmyard, and 6 mi (10 km) southeast of Center.

DRAINAGE AREA.--146 mi² (378 km²).

PERIOD OF RECORD.--May 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,865 ft (568 m), from topographic map.

REMARKS.--Records fair. Flow regulated by Nelson Lake 1.5 mi (2.4 km) upstream beginning Aug. 24, 1967, capacity, 5,000 acre-ft (6.16 hm³). The capacity of Nelson Lake was increased to 10,000 acre-ft (12.3 hm³) in August 1975.

AVERAGE DISCHARGE.--13 years, 11.9 ft³/s (0.337 m³/s), 8,620 acre-ft/yr (10.6 hm³/yr); median of yearly mean discharges, 13 ft³/s (0.37 m³/s), 9,400 acre-ft/yr (12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,700 ft³/s (275 m³/s) June 24, 1966, gage height, 14.35 ft (4.374 m); no flow Feb. 14-26, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 1,150 ft³/s (32.6 m³/s) Mar. 27, gage height, 8.35 ft (2.545 m); minimum daily, 0.02 ft³/s (0.001 m³/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.1	4.7	2.0	1.2	44	219	6.9	1.5	2.5	2.0	.50
2	1.4	2.6	4.5	2.0	1.2	44	180	7.0	2.7	2.2	2.0	.42
3	1.4	2.8	4.5	2.0	1.1	44	120	7.2	2.7	2.1	1.6	.36
4	1.4	2.8	4.5	1.9	1.1	12	82	2.0	3.1	2.5	1.7	.30
5	1.4	2.6	4.5	1.9	1.0	3.0	48	1.8	2.5	2.4	2.1	.42
6	1.2	2.6	4.7	1.8	1.0	2.6	140	1.7	2.8	2.1	2.2	.36
7	2.5	2.6	4.5	1.7	.90	2.6	80	2.6	3.0	1.9	1.8	.42
8	2.5	2.6	4.5	1.7	.90	2.6	125	3.3	3.4	1.9	2.1	.42
9	1.7	2.3	3.0	1.7	.80	2.6	141	2.4	3.5	2.4	2.3	.36
10	1.6	2.3	4.[illegible]	1.6	.80	14	107	2.2	3.3	1.8	2.0	.36
11	1.6	2.3	4.3	1.6	.80	9.0	50	2.3	3.7	1.9	2.1	1.2
12	1.6	2.3	4.3	1.6	.80	2.5	48	2.8	3.4	2.0	2.1	.90
13	1.6	2.3	4.3	1.6	.70	3.0	48	2.4	3.2	1.5	2.9	.36
14	1.7	2.3	3.5	1.6	.70	5.0	33	2.0	3.4	1.4	2.1	.60
15	1.9	2.5	2.8	1.6	.70	7.0	11	1.9	3.7	1.5	2.3	.42
16	1.9	2.5	2.8	1.5	.60	6.0	12	1.8	3.7	1.4	2.2	.30
17	2.1	4.5	2.8	1.5	.60	6.0	12	1.7	3.1	1.6	2.3	.36
18	1.9	1.7	2.8	1.5	30	9.0	12	1.9	2.7	1.6	2.1	.30
19	1.9	1.2	2.8	1.5	58	19	12	2.0	2.6	3.1	1.7	.20
20	1.9	1.7	2.8	1.5	56	11	12	1.9	2.5	1.6	1.9	.12
21	1.9	1.8	2.6	1.4	54	68	18	2.0	3.2	1.6	1.9	.04
22	1.9	2.1	2.5	1.4	52	230	29	2.0	3.0	1.6	1.7	.02
23	2.1	1.4	2.5	1.4	50	360	30	2.0	3.1	1.6	1.8	.20
24	2.1	1.2	2.5	1.4	46	570	30	2.1	2.9	1.2	1.4	.16
25	1.9	1.2	2.5	1.3	48	660	23	2.0	2.8	1.4	1.1	1.0
26	1.9	1.2	2.5	1.3	46	960	11	1.3	3.3	1.6	1.1	1.7
27	1.9	1.2	2.4	1.3	47	1120	6.8	1.5	2.9	1.6	1.2	2.4
28	1.9	1.2	2.4	1.2	53	1030	7.0	1.6	3.8	1.5	1.2	2.6
29	1.7	1.7	2.3	1.2	---	60	7.0	1.5	4.4	1.5	1.1	2.0
30	1.9	4.7	2.2	1.2	---	580	6.9	1.8	3.1	1.6	1.4	2.0
31	2.1	---	2.1	1.2	---	250	---	1.7	---	1.7	1.1	---
TOTAL	55.5	66.3	103.8	48.1	554.90	6136.9	1660.7	77.3	93.0	56.3	56.5	20.80
MEAN	1.79	2.21	3.35	1.55	19.8	198	55.4	2.49	3.10	1.82	1.82	.69
MAX	2.5	4.7	4.7	2.0	58	1120	219	7.2	4.4	3.1	2.9	2.6
MIN	1.0	1.2	2.1	1.2	.60	2.5	6.8	1.3	1.5	1.2	1.1	.02
AC-FT	110	132	206	95	1100	12170	3290	153	184	112	112	41

CAL YR 1977 TOTAL 670.17 MEAN 1.84 MAX 7.4 MIN .90 AC-FT 1330
WTR YR 1978 TOTAL 8930.10 MEAN 24.5 MAX 1120 MIN .02 AC-FT 17710

06342450 BURNT CREEK NEAR BISMARCK, ND

LOCATION.--Lat 46°54'54", long 100°48'48", in SW¼NW¼SW¼ sec.29, T.140 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank on upstream side of county highway bridge, and 7 mi (11 km) northwest of Bismarck.

DRAINAGE AREA.--108 mi² (280 km²).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,690 ft (515 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--11 years, 7.48 ft³/s (0.212 m³/s), 5,420 acre-ft/yr (6.68 hm³/yr); median of yearly mean discharge, 4.7 ft³/s (0.13 m³/s), 3,400 acre-ft/yr (4.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Apr. 8, 1969, gage height, 14.80 ft (4.511 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	600	17.0	a*13.98	4.261	Mar. 27	--	a*800	22.7	--	--

No flow, July 27 to Sept. 9.

a - Backwater from ice.

DISCHANGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.17	.90	.30	.16	.04	35	4.8	3.1	6.6	.00	.00
2	.76	.16	.90	.30	.16	.04	22	4.8	3.9	6.0	.00	.00
3	.60	.15	.90	.30	.14	.04	20	4.0	4.2	4.1	.00	.00
4	.49	.14	.90	.30	.14	.05	20	3.3	3.6	2.3	.00	.00
5	.30	.14	.80	.30	.14	.06	28	3.2	2.8	1.5	.00	.00
6	.15	.13	.80	.30	.12	.08	30	2.9	2.5	1.0	.00	.00
7	.24	.12	.80	.25	.12	.10	24	3.6	2.3	.80	.00	.00
8	1.5	.10	.80	.25	.10	.20	20	9.7	1.6	.80	.00	.00
9	2.0	.10	.80	.25	.10	.50	18	16	1.5	.70	.00	.00
10	4.5	.10	.80	.25	.10	1.0	17	15	1.4	.60	.00	.10
11	4.3	.10	.80	.25	.10	1.3	16	9.8	1.2	.50	.00	5.0
12	2.7	.10	.80	.25	.10	1.5	15	8.8	1.1	.50	.00	56
13	1.7	.08	.90	.25	.10	1.6	14	9.0	1.1	.60	.00	20
14	1.0	.08	.90	.25	.10	1.7	13	8.6	1.1	.50	.00	10
15	.72	.07	.90	.25	.08	2.0	12	6.9	1.1	.50	.00	6.0
16	.56	.06	.80	.20	.08	2.6	11	5.2	1.2	.40	.00	3.0
17	.37	.06	.80	.20	.08	3.0	12	4.1	1.1	.40	.00	1.0
18	.28	.05	.80	.20	.08	4.0	18	3.4	1.0	.80	.00	.80
19	.25	.50	.70	.20	.08	5.0	16	3.6	.96	.60	.00	.60
20	.25	1.5	.70	.20	.08	10	13	3.8	1.0	.30	.00	.40
21	.23	1.7	.60	.20	.08	100	10	3.3	1.0	.20	.00	.20
22	.22	1.6	.50	.20	.08	520	9.4	3.8	.96	.10	.00	.10
23	.21	1.4	.40	.20	.08	500	10	3.4	.92	.05	.00	.07
24	.20	1.1	.30	.20	.06	300	11	4.8	.88	.02	.00	.05
25	.19	.90	.30	.20	.06	200	11	5.2	.92	.01	.00	.04
26	.17	.80	.30	.20	.06	480	9.4	5.4	1.1	.01	.00	.03
27	.17	.70	.30	.20	.06	400	7.6	5.4	5.8	.00	.00	.03
28	.19	.70	.30	.19	.04	250	7.0	6.0	6.0	.00	.00	.02
29	.18	.70	.30	.19	---	130	6.6	4.6	4.3	.00	.00	.02
30	.18	.90	.25	.18	---	120	5.7	3.3	5.9	.00	.00	.01
31	.18	---	.30	.18	---	60	---	3.2	---	.00	.00	---
TOTAL	25.99	14.41	20.35	7.19	2.68	3094.81	461.7	178.9	65.54	29.89	.00	103.47
MEAN	.84	.48	.66	.23	.096	99.8	15.4	5.77	2.18	.96	.000	3.45
MAX	4.5	1.7	.90	.30	.16	520	35	16	6.0	6.6	.00	56
MIN	.15	.05	.25	.18	.04	.04	5.7	2.9	.88	.00	.00	.00
AC-FT	52	29	40	14	5.3	6140	916	355	130	59	.00	205

CAL YR 1977 TOTAL 261.71 MEAN .72 MAX 25 MIN .00 AC-FT 519
WTR YR 1978 TOTAL 4004.93 MEAN 11.0 MAX 520 MIN .00 AC-FT 7940

06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE¼NW¼SE¼ sec.31, T.139 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank 40 ft (12 m) upstream from Bismarck city waterplant, 2,100 ft (640 m) downstream from Burlington Northern Railway bridge, 1.6 mi (2.6 km) northwest of Bismarck Post Office, 3.5 mi (5.6 km) upstream from Heart River, and at mile 1,314.5 (2,115.0 km).

DRAINAGE AREA.--186,400 mi² (482,800 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to November 1927, April 1928 to current year. See WSP 1729 or 1917 for history of data prior to April 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,618.28 ft (493.252 m), revised, National Geodetic Vertical Datum of 1929. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1937.

REMARKS.--Records good. Many diversions from tributaries. Flow regulated by Lake Sakakawea (station 06338000) 75.4 mi (121.3 km) upstream since November 1953.

AVERAGE DISCHARGE.--50 years (1928-78), 22,460 ft³/s (636.1 m³/s), 16,270,000 acre-ft/yr (20.1 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 500,000 ft³/s (14,200 m³/s) Apr. 6, 1952, gage height, 27.90 ft (8.504 m). Maximum discharge since construction of Garrison Dam in 1953, 68,900 ft³/s (1,950 m³/s) July 13, 1975, gage height, 14.24 ft (4.340 m). Minimum discharge, about 1,800 ft³/s (51.0 m³/s) Jan. 3, 1940; minimum gage height, 1.35 ft (0.411 m) Sept. 4, 1934, present site and datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 31.6 ft (9.632 m) Mar. 31, 1881 (ice jam), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,700 ft³/s (1,240 m³/s) Aug. 26, gage height, 11.17 ft (3.405 m); maximum gage height, 13.86 ft (4.225 m) Dec. 13, backwater from ice; minimum discharge, 10,300 ft³/s (292 m³/s) May 8, gage height, 4.03 ft (1.228 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15600	12700	27500	23500	32000	28000	34100	14200	24000	42300	42500	35800
2	15300	12900	27000	24000	31000	29000	32000	15600	24600	42600	42500	39000
3	15500	12800	27000	25100	32000	29000	29300	17300	25000	42600	41600	37100
4	15000	12700	27000	26000	31000	30000	28900	18200	23600	42700	42300	41200
5	15400	12900	27500	26000	30100	31000	27900	17800	23900	42600	42300	41300
6	15300	12500	27000	26100	29000	28000	27600	18600	24100	41300	42100	40400
7	15800	12400	26000	26500	30000	31000	27100	15800	25300	42100	41900	37100
8	16200	12400	23000	26300	30300	30000	27300	10900	24500	42400	42400	37500
9	15600	13000	22000	26500	32200	28000	29200	14200	25800	42400	42600	37600
10	14600	13500	22000	27000	32600	26000	27200	17800	27700	42200	42600	38600
11	14000	13900	22000	27200	32400	24000	27900	18600	29300	42300	42800	36700
12	13500	13200	22000	27000	32100	23000	28000	18400	30000	42800	42900	37700
13	13500	12800	22000	27600	29500	24000	24100	18100	29800	42400	42900	33900
14	13500	12600	22000	28500	30000	24000	21900	15600	32000	42200	43000	31800
15	13500	13400	20000	28000	30500	23000	20500	13800	35000	42200	43000	31200
16	13500	12900	19000	27000	31500	22000	20200	15100	35600	42300	42900	31300
17	13500	12700	19000	28000	31300	22000	16000	14600	35400	42500	43000	30800
18	13500	13500	19000	28500	30900	22000	18200	14300	34900	42300	43100	29200
19	13500	16400	19500	29000	31000	22000	19800	14300	35900	42700	42700	30000
20	13700	18700	20000	29500	30500	21000	20900	13800	37100	42600	43000	29900
21	14000	18700	21000	29000	30600	22000	18800	14000	36600	42600	43200	31000
22	13300	19800	22000	28000	32000	25000	19300	14700	38600	42600	42500	31200
23	13700	22100	23000	28500	31500	26000	18800	14500	41200	42700	42600	32400
24	14000	22500	23000	29000	31000	26000	17300	16800	41800	42400	42500	31800
25	13700	25100	23000	28500	30000	24500	18000	21600	42000	42500	43000	31000
26	13100	27500	23000	27000	29000	25000	18200	23400	41100	42400	43500	33000
27	13200	28500	22500	29400	28000	25300	18000	25700	41300	42300	43500	39000
28	12600	27500	23500	31000	28000	27200	18000	25600	41500	42500	43300	40700
29	12500	27000	23500	31200	---	29000	19000	23700	41400	42400	39500	42600
30	12400	29000	24000	31200	---	28100	18300	23100	42000	42400	37100	42900
31	13100	---	23500	30800	---	33200	---	24000	---	42500	37200	---
TOTAL	435600	515600	712500	860900	860000	808300	691800	544100	991000	1314800	1310000	1063700
MEAN	14050	17190	22980	27770	30710	26070	23060	17550	33030	42410	42260	35460
MAX	16200	29000	27500	31200	32600	33200	34100	25700	42000	42800	43500	42900
MIN	12400	12400	19000	23500	28000	21000	16000	10900	23600	41300	37100	29200
AC-FT	864000	1023000	1413000	1708000	1706000	1603000	1372000	1079000	1966000	2608000	2598000	2110000

CAL YR 1977 TOTAL 7368200 MEAN 20190 MAX 34000 MIN 12400 AC-FT 14610000
WTR YR 1978 TOTAL 10108300 MEAN 27690 MAX 43500 MIN 10900 AC-FT 20050000

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SEDIMENT RECORDS.--June 1946 to current year.

REMARKS.--Sediment records from June 1946 to September 1971 are available from Corps of Engineers, Omaha, Neb. Sediment concentration data from Oct. 1, 1971 to June 30, 1972 were furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS (July 1972 to current year): Maximum daily mean, 800 mg/L Apr. 1, 1978; minimum daily mean, 14 mg/L Dec. 15-21, 1977.
SEDIMENT LOADS (July 1972 to current year): Maximum daily, 73,700 tons (66,900 metric tons) Apr. 1, 1978; minimum daily, 718 tons (651 metric tons) Dec. 16-18, 1977.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 800 mg/L Apr. 1, minimum daily mean, 14 mg/L Dec. 15-21.
SEDIMENT LOADS: Maximum daily, 73,700 tons (66,900 metric tons) Apr. 1; minimum daily, 718 tons (651 metric tons) Dec. 16-18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW (CFS) (00060)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
12...	1330	13500	510	8.5	--	9.5	--	--	10.1	80
26...	1445	13100	650	8.4	--	11.5	--	4.5	9.9	97
NOV										
08...	1415	12400	660	8.6	--	8.5	--	--	10.7	96
DEC										
21...	1415	21000	660	8.3	--	.0	--	2.5	13.0	94
JAN										
05...	1515	26000	650	8.6	-13.0	.0	--	--	13.1	88
12...	1408	27000	680	8.5	-5.5	.0	--	2.8	12.6	87
24...	1030	30300	670	8.3	--	.0	--	--	13.0	96
FEB										
02...	1215	31000	670	8.4	--	.0	--	2.3	13.0	94
14...	1100	30000	680	8.5	--	.0	--	--	13.0	94
MAR										
01...	1345	28000	700	8.6	-8.0	.0	--	2.7	13.1	95
14...	1430	24000	675	8.4	-1.0	.0	--	3.1	12.6	93
31...	1300	33200	545	8.2	--	5.5	--	--	9.7	79
APR										
14...	1130	21900	710	8.1	9.0	3.5	9	14	12.2	97
25...	1315	18000	670	8.3	--	6.0	--	--	11.8	100
MAY										
09...	1335	14200	670	8.3	17.0	7.0	--	5.0	11.3	95
22...	1300	14700	700	8.4	--	13.5	--	--	10.2	103
JUN										
07...	1545	25300	680	8.5	--	13.0	--	4.8	--	--
20...	1100	42600	695	8.3	19.0	12.5	--	--	9.8	97
JUL										
06...	1600	41300	690	8.3	--	14.5	--	3.4	10.0	102
20...	1645	42600	675	8.3	--	14.5	--	--	9.3	96
AUG										
09...	1045	42600	675	8.1	25.0	15.0	--	3.3	8.7	90
22...	1430	42500	680	8.3	--	16.0	--	--	8.8	100
SEP										
13...	1530	33900	675	8.4	15.0	15.0	--	8.4	8.9	93
26...	1545	33000	695	8.3	20.5	16.5	--	--	8.8	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)
OCT										
12...	8	K90	K5	--	--	--	--	--	--	--
26...	4	K65	K2	230	73	56	22	58	35	1.7
NOV										
08...	11	--	K7	--	--	--	--	--	--	--
DEC										
21...	8	210	K7	230	76	55	23	61	36	1.7
JAN										
05...	22	41	K6	--	--	--	--	--	--	--
12...	36	583	K12	240	81	56	24	61	35	1.7
24...	20	440	K3	--	--	--	--	--	--	--
FEB										
02...	19	820	K5	250	80	57	25	61	35	1.7
14...	14	K11700	K6	--	--	--	--	--	--	--
MAR										
01...	16	K20	K1	250	83	61	23	62	35	1.7
14...	4	25	K7	240	80	60	23	59	34	1.6
31...	66	620	K10	--	--	--	--	--	--	--
APR										
14...	9	K20	K2	240	64	55	24	67	38	1.9
25...	13	420	K5	--	--	--	--	--	--	--
MAY										
09...	11	K20	K2	--	--	--	--	--	--	--
22...	14	--	K1	--	--	--	--	--	--	--
JUN										
07...	10	<10	K5	240	72	55	24	67	38	1.9
20...	10	2060	K20	--	--	--	--	--	--	--
JUL										
06...	27	K45	K3	230	79	56	23	64	37	1.8
20...	6	K20	K8	--	--	--	--	--	--	--
AUG										
09...	37	3000	K7	--	--	--	24	64	3	--
22...	21	3500	K10	--	--	--	--	--	--	--
SEP										
13...	13	K270	100	230	74	54	22	65	38	1.9
26...	16	K55	K13	--	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT										
12...	--	--	--	--	--	--	--	--	--	--
26...	4.1	190	1	160	1.2	170	9.1	.5	.6	7.7
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
21...	4.2	190	0	160	1.5	190	9.5	--	.6	8.2
JAN										
05...	--	--	--	--	--	--	--	--	--	--
12...	4.2	190	1	160	1.0	200	9.8	--	.6	8.4
24...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	4.1	200	1	170	1.3	190	10	--	.6	8.3
14...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	3.9	200	0	160	.8	180	13	--	.6	8.0
14...	4.2	200	0	160	1.3	170	9.8	--	.7	7.7
31...	--	--	--	--	--	--	--	--	--	--
APR										
14...	4.3	210	0	170	2.7	170	13	.5	.3	2.7
25...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	--	220	0	180	1.8	190	10	--	.6	7.7
22...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	4.2	190	5	160	1.0	190	13	.5	.6	7.7
20...	--	--	--	--	--	--	--	--	--	--
JUL										
06...	4.3	190	0	160	1.5	190	9.9	.2	.6	7.4
20...	--	--	--	--	--	--	--	--	--	--
AUG										
09...	4.3	180	0	148	2.3	180	10	.5	.6	6.7
22...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	4.3	180	2	150	1.2	190	10	--	.5	7.8
26...	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP, TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
12...	416	--	.57	15200	--	--	--	.09	.00
26...	428	422	.58	15100	--	.05	.00	.05	.00
NOV									
08...	432	--	.59	14500	--	--	--	.05	.00
DEC									
21...	442	445	.60	25100	--	--	--	.08	.01
JAN									
05...	441	--	.60	31000	23	--	--	.09	.01
12...	449	459	.61	32700	--	--	--	.18	.10
24...	441	--	.60	36100	--	--	--	.06	.01
FEB									
02...	467	456	.64	39100	--	--	--	.07	.02
14...	450	--	.61	36500	--	--	--	.06	.02
MAR									
01...	451	450	.61	34100	--	--	--	.12	.02
14...	443	433	.60	28700	--	--	--	.10	.01
31...	349	--	.47	31300	--	--	--	.25	.16
APR									
14...	416	440	.57	24600	--	.08	.00	.08	.03
25...	472	--	.64	22900	--	--	--	.13	.01
MAY									
09...	469	--	.64	18000	--	--	--	.08	.01
22...	462	--	.63	18300	--	--	--	.05	.01
JUN									
07...	448	460	.61	30600	--	.07	.01	.08	.01
20...	447	--	.61	51400	30	--	--	.11	.00
JUL									
06...	452	449	.61	50400	--	.14	.01	.15	.01
20...	439	--	.60	50500	58	--	--	.14	.00
AUG									
09...	459	--	.62	52800	--	.25	.01	.26	.00
22...	459	--	.62	52700	31	--	--	.21	.00
SEP									
13...	462	445	.63	42300	--	--	--	.28	.00
26...	522	--	.71	46500	13	--	--	.21	.00

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL) (01107)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT									
12...	.37	.37	.46	2.0	.06	--	--	--	--
26...	.34	.34	.39	1.7	.02	0	0	30	2
NOV									
08...	.17	.17	.22	.97	.01	--	--	--	--
DEC									
21...	.08	.09	.17	.75	.01	--	--	--	--
JAN									
05...	.30	.31	.40	1.8	.01	--	--	--	--
12...	.19	.29	.47	2.1	.02	--	--	--	--
24...	.06	.07	.13	.58	.03	--	--	--	--
FEB									
02...	.14	.16	.23	1.0	.02	--	--	--	--
14...	.39	.41	.47	2.1	.02	--	--	--	--
MAR									
01...	.07	.09	.21	.93	.02	--	--	--	--
14...	.22	.23	.33	1.5	.16	--	--	--	--
31...	.94	1.1	1.4	6.0	.42	--	--	--	--
APR									
14...	.28	.31	.39	1.7	.03	1500	1500	30	5
25...	.44	.45	.58	2.6	.02	--	--	--	--
MAY									
09...	.52	.53	.61	2.7	.04	--	--	--	--
22...	.54	.55	.60	2.7	.08	--	--	--	--
JUN									
07...	.76	.77	.85	3.8	.03	100	--	--	3
20...	.37	.37	.48	2.1	.06	--	--	--	--
JUL									
06...	.30	.31	.46	2.0	.04	950	--	--	4
20...	.41	.41	.55	2.4	.03	--	--	--	--
AUG									
09...	.27	.27	.53	2.3	.10	40	--	--	2
22...	.34	.34	.55	2.4	.04	--	--	--	--
SEP									
13...	.39	.39	.67	3.0	.06	--	--	--	--
26...	.66	.66	.87	3.9	.11	--	--	--	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ARSENIC SUSPENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, SUSPENDED RECOV. (UG/L AS BE) (01011)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOVERABLE (UG/L AS B) (01022)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)
OCT									
12...	--	--	--	--	--	--	--	--	--
26...	0	2	300	0	0	0	150	130	--
NOV									
08...	--	--	--	--	--	--	--	--	--
DEC									
21...	--	--	--	--	--	--	--	120	--
JAN									
05...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	120	--
24...	--	--	--	--	--	--	--	--	--
FEB									
02...	--	--	--	--	--	--	--	130	--
14...	--	--	--	--	--	--	--	--	--
MAR									
01...	--	--	--	--	--	--	--	130	--
14...	--	--	--	--	--	--	--	130	--
31...	--	--	--	--	--	--	--	--	--
APR									
14...	3	2	100	0	0	0	160	130	1
25...	--	--	--	--	--	--	--	--	--
MAY									
09...	--	--	--	--	--	--	--	130	--
22...	--	--	--	--	--	--	--	--	--
JUN									
07...	--	--	300	5	--	--	140	140	1
20...	--	--	--	--	--	--	--	--	--
JUL									
06...	--	--	200	0	--	--	180	120	0
20...	--	--	--	--	--	--	--	--	--
AUG									
09...	--	--	100	0	--	--	160	120	0
22...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	--	190	--
26...	--	--	--	--	--	--	--	--	--

DATE	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT									
12...	--	--	--	--	--	--	--	--	--
26...	--	0	5	5	0	<50	<10	<7	3
NOV									
08...	--	--	--	--	--	--	--	--	--
DEC									
21...	--	--	--	--	--	--	--	--	--
JAN									
05...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
FEB									
02...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
MAR									
01...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
14...	1	0	0	0	0	1	7	7	0
25...	--	--	--	--	--	--	--	--	--
MAY									
09...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
JUN									
07...	--	--	0	--	--	0	6	--	--
20...	--	--	--	--	--	--	--	--	--
JUL									
06...	--	--	0	--	--	0	10	--	--
20...	--	--	--	--	--	--	--	--	--
AUG									
09...	--	--	10	--	--	3	10	--	--
22...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM SUS-PENDED RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT										
12...	--	--	--	--	--	--	--	--	--	--
26...	850	10	--	1	30	0	40	40	40	4
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
21...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
14...	2200	20	--	2	50	0	50	50	40	10
25...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	2200	--	--	--	50	--	--	40	--	--
20...	--	--	--	--	--	--	--	--	--	--
JUL										
06...	2100	--	7	--	50	--	--	50	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
09...	1600	--	7	--	50	--	--	40	--	--
22...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	MOLYB-DENUM, SUS-PENDED RECOV. (UG/L AS MO)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
OCT										
12...	--	--	--	--	--	--	--	--	--	--
26...	.0	.0	.0	9	7	2	<50	<49	1	1
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
21...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
14...	.0	.0	.0	7	5	2	6	4	2	0
25...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	.0	--	--	8	--	--	3	--	--	1
20...	--	--	--	--	--	--	--	--	--	--
JUL										
06...	.0	--	--	4	--	--	6	--	--	1
20...	--	--	--	--	--	--	--	--	--	--
AUG										
09...	.0	--	--	4	--	--	7	--	--	1
22...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
OCT										
12...	--	--	--	--	--	--	--	2.7	--	--
26...	0	1	<10	1.1	20	10	8	--	2.5	.6
NOV										
08...	--	--	--	--	--	--	--	3.0	--	--
DEC										
21...	--	--	--	--	--	--	--	--	3.6	.1
JAN										
05...	--	--	--	--	--	--	--	2.9	--	--
12...	--	--	--	--	--	--	--	--	2.8	.2
24...	--	--	--	--	--	--	--	2.7	--	--
FEB										
02...	--	--	--	--	--	--	--	--	3.1	.1
14...	--	--	--	--	--	--	--	12	--	--
MAR										
01...	--	--	--	--	--	--	--	--	3.0	.4
14...	--	--	--	--	--	--	--	--	4.8	.2
31...	--	--	--	--	--	--	--	15	--	--
APR										
14...	0	0	0	.0	10	0	10	--	2.9	.5
25...	--	--	--	--	--	--	--	2.9	--	--
MAY										
09...	--	--	--	--	--	--	--	--	5.2	1.3
22...	--	--	--	--	--	--	--	3.3	--	--
JUN										
07...	--	--	0	--	30	--	--	--	2.8	--
20...	--	--	--	--	--	--	--	--	4.6	.5
JUL										
06...	--	--	0	--	20	--	--	--	3.1	--
20...	--	--	--	--	--	--	--	3.7	--	--
AUG										
09...	--	--	0	--	20	--	--	--	3.2	.2
22...	--	--	--	--	--	--	--	3.7	--	--
SEP										
13...	--	--	--	--	--	--	--	--	3.3	.5
26...	--	--	--	--	--	--	--	4.0	--	--

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)
OCT								
12...	80	2920	--	--	--	--	--	--
26...	51	1800	26	63	100	--	0	2
NOV								
08...	82	2750	--	--	--	--	--	--
DEC								
21...	14	794	--	--	--	--	--	--
JAN								
05...	55	3860	--	--	--	--	--	--
12...	61	4450	--	--	--	--	1	5
24...	126	10300	--	--	--	--	--	--
FEB								
02...	182	15200	--	--	--	--	--	--
14...	84	6800	--	--	--	--	--	--
MAR								
14...	144	9330	--	--	--	--	--	--
31...	892	80000	--	--	--	--	--	--
APR								
14...	164	9700	--	--	--	--	--	--
25...	72	3500	--	--	--	--	1	2
MAY								
09...	226	8670	--	--	--	--	--	--
22...	52	2060	--	--	--	--	0	3
JUN								
07...	154	10500	21	60	99	100	--	--
20...	330	38000	--	--	--	--	1	5
JUL								
06...	234	26100	20	56	100	--	--	--
20...	218	25100	--	--	--	--	--	--
AUG								
09...	172	19800	--	--	--	--	--	--
22...	142	16300	--	--	--	--	3	8
SEP								
13...	118	10800	--	--	--	--	--	--
26...	134	11900	--	--	--	--	1	3

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT							
12...	--	--	--	--	--	--	--
26...	59	89	97	98	99	100	--
NOV							
08...	--	--	--	--	--	--	--
DEC							
21...	--	--	--	--	--	--	--
JAN							
05...	--	--	--	--	--	--	--
12...	72	97	99	100	--	--	--
24...	--	--	--	--	--	--	--
FEB							
02...	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--
MAR							
14...	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--
APR							
14...	--	--	--	--	--	--	--
25...	45	86	94	97	98	100	--
MAY							
09...	--	--	--	--	--	--	--
22...	50	88	95	96	97	99	100
JUN							
07...	--	--	--	--	--	--	--
20...	80	97	99	99	99	99	100
JUL							
06...	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--
AUG							
09...	--	--	--	--	--	--	--
22...	78	98	100	--	--	--	--
SEP							
13...	--	--	--	--	--	--	--
26...	68	96	99	99	100	--	--

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	102	4300	80	2740	210	15600	30	1900	170	14700	130	9830
2	100	4130	82	2860	200	14600	35	2270	160	13400	150	11700
3	102	4270	82	2830	200	14600	45	3050	160	13800	150	11700
4	100	4050	82	2810	200	14600	50	3510	150	12600	160	13000
5	100	4160	84	2930	200	14900	55	3860	140	11400	170	14200
6	100	4130	82	2770	100	7290	57	4020	120	9400	150	11300
7	102	4350	82	2750	40	2810	60	4290	125	10100	160	13400
8	105	4590	82	2750	30	1860	60	4260	120	9820	150	12200
9	102	4300	82	2880	25	1490	60	4290	130	11300	140	10600
10	90	3550	82	2990	20	1190	62	4520	130	11400	150	10500
11	83	3140	85	3190	17	1010	62	4550	120	10500	145	9400
12	80	2920	82	2920	15	891	62	4520	110	9530	140	8690
13	80	2920	80	2760	15	891	65	4840	90	7170	145	9400
14	80	2920	80	2720	15	891	80	6160	85	6880	145	9400
15	80	2920	84	3040	14	756	80	6050	85	7000	140	8690
16	80	2920	82	2860	14	718	75	5470	85	7230	130	7720
17	80	2920	80	2740	14	718	80	6050	80	6760	130	7720
18	80	2920	86	3130	14	718	85	6540	75	6260	130	7720
19	80	2920	115	5090	14	737	90	7050	80	6700	130	7720
20	82	3030	130	6560	14	756	100	7960	80	6590	120	6800
21	85	3210	130	6560	14	794	100	7830	80	6610	130	7720
22	80	2870	150	8020	18	1070	90	6800	130	11200	150	10100
23	82	3030	180	10700	25	1550	100	7690	130	11100	160	11200
24	83	3140	185	11200	25	1550	110	8610	130	10900	160	11200
25	82	3030	200	13600	25	1550	110	8460	130	10500	200	13200
26	75	2650	210	15600	25	1550	100	7290	125	9790	250	16900
27	77	2740	220	16900	25	1520	140	11100	120	9070	350	23900
28	75	2550	210	15600	25	1590	160	13400	120	9070	420	30800
29	75	2530	205	14900	25	1590	160	13500	---	---	500	39200
30	75	2510	225	17600	30	1940	160	13500	---	---	600	45500
31	85	3010	---	---	30	1900	150	12500	---	---	700	62700
TOTAL	---	102630	---	194000	---	113630	---	205840	---	270780	---	474110

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	800	73700	70	2680	150	9720	220	25100	170	19500	110	10600
2	750	64800	80	3370	160	10600	240	27600	170	19500	130	13700
3	650	51400	90	4200	150	10100	240	27600	160	18000	120	12000
4	570	44500	100	4910	120	7650	250	28800	180	20600	150	16700
5	500	37700	90	4330	130	8390	240	27600	180	20600	150	16700
6	450	33500	100	5020	140	9110	235	26200	170	19300	140	15300
7	400	29300	90	3840	155	10600	220	25000	160	18100	130	13000
8	320	23600	80	2350	140	9260	230	26300	170	19500	130	13200
9	300	23700	220	8430	150	10400	230	26300	170	19600	130	13200
10	230	16900	250	12000	190	14200	220	25100	170	19600	140	14600
11	220	16600	270	13600	220	17400	225	25700	180	20800	130	12900
12	250	18900	260	12900	230	18600	230	26600	180	20800	140	14300
13	210	13700	240	11700	220	17700	220	25200	180	20800	120	11000
14	165	9760	150	6320	250	21600	210	23900	180	20900	110	9440
15	120	6640	100	3730	280	26500	210	23900	180	20900	110	9270
16	115	6270	90	3670	290	27900	220	25100	170	19700	110	9300
17	65	2810	80	3150	280	26800	230	26400	170	19700	105	8730
18	75	3690	70	2700	260	24500	210	24000	170	19800	100	7880
19	80	4280	60	2320	280	27100	220	25400	160	18400	110	8910
20	90	5080	55	2050	330	33100	220	25300	160	18600	110	8880
21	80	4060	50	1890	300	29600	220	25300	160	18700	110	9210
22	85	4430	52	2060	280	29200	220	25300	150	17200	110	9270
23	80	4060	50	1960	270	30000	220	25400	150	17300	130	11400
24	65	3040	110	4990	270	30500	210	24000	150	17200	120	10300
25	72	3500	150	8750	260	29500	210	24100	150	17400	120	10000
26	75	3690	200	12600	230	25500	200	22900	155	18200	135	12000
27	70	3400	250	17300	220	24500	190	21700	155	18200	140	14700
28	70	3400	220	15200	210	23500	200	23000	150	17500	150	16500
29	80	4100	150	9600	210	23500	180	20600	130	13900	160	18400
30	75	3710	130	8110	220	24900	170	19500	120	12000	160	18500
31	---	---	150	9720	---	---	170	19500	120	12100	---	---
TOTAL	---	524220	---	285450	---	611930	---	768400	---	574400	---	369890

TOTAL LOAD FOR YEAR: 4415280 TONS.

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 26,77		DEC 21,77		JAN 12,78		FEB 2,78		MAR 1,78		MAR 14,78	
TIME	1445		1415		1408		0000		1345		1430	
TOTAL CELLS/ML	810		110		1700		1100		960		160	
DIVERSITY: DIVISION	1.5		0.0		0.0		0.0		0.0		0.3	
.CLASS	1.5		0.0		0.0		0.0		0.0		0.3	
..ORDER	1.8		0.0		0.1		0.0		0.0		0.3	
...FAMILY	2.5		0.0		0.1		0.3		0.2		1.3	
....GENUS	2.7		0.0		0.2		0.3		0.2		1.3	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	9	1	--	-	--	-	--	-	--	-	7	4
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	140#	18	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...PHACOTACEAE												
....COCCOMONAS	9	1	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....COSCINODISCUS	9	1	--	-	--	-	--	-	--	-	--	-
....CYCLOTELLA	9	1	--	-	30	2	--	-	--	-	--	-
....STEPHANODISCUS	18	2	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	6	1	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	9	1	--	-	--	-	--	-	--	-	7	4
...FRAGILARIACEAE												
....ASTERIONELLA	45	5	110#	100	1600#	97	1100#	96	930#	97	120#	74
....SYNEDRA	18	2	--	-	15	1	--	-	6	1	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	18	2	--	-	--	-	--	-	6	1	14	9
...NITZSCHIACEAE												
....NITZSCHIA	18	2	--	-	--	-	--	-	12	1	14	9
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
...TABELLARIACEAE												
....TABELLARIA	18	2	--	-	--	-	38	3	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....RHODOMONAS	370#	46	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	98	12	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 26,77		DEC 21,77		JAN 12,78		FEB 2,78		MAR 1,78		MAR 14,78	
TIME	1445		1415		1408		0000		1345		1430	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	9	1	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	9	1	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 14,78	MAY 9,78	JUN 7,78	JUL 6,78	AUG 9,78	SEP 13,78
TIME	1130	1335	1545	1600	1045	1530
TOTAL CELLS/ML	110	2800	1200	59	60	650
DIVERSITY: DIVISION	1.0	1.5	1.6	0.0	1.6	1.2
.CLASS	1.0	1.5	1.7	0.0	1.6	1.2
..ORDER	1.0	1.7	1.9	0.0	1.8	1.5
...FAMILY	1.5	1.7	2.5	0.0	2.0	2.7
....GENUS	1.5	1.7	3.1	0.0	2.2	2.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	260#	21	--	-	1	2	--	-
....CHLORELLA	--	-	--	-	--	-	--	-	--	-	42	6
....CHODATELLA	--	-	--	-	14	1	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	280	10	29	2	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	170	14	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	5	9	--	-
....SCENEDESMUS	55#	50	--	-	100	8	59#	100	11#	18	--	-
....TETRASTRUM	--	-	--	-	57	5	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	100	4	--	-	--	-	--	-	--	-
...PHACOTACEAE												
....COCCOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....STAURASTRUM	--	-	--	-	--	-	--	-	1	2	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....COSCINODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
....CYCLOTELLA	--	-	1400#	50	190#	15	--	-	1	2	42	6
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	28	4
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	14	2
....RHOICOSPHENIA	--	-	--	-	14	1	--	-	--	-	14	2
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	28	4
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	1	2	28	4
...FRAGILARIACEAE												
....ASTERIONELLA	27#	25	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	27#	25	--	-	--	-	--	-	--	-	14	2
...NAVICULACEAE												
....NAVICULA	--	-	--	-	--	-	--	-	--	-	42	6
...NITZSCHIACEAE												
....NITZSCHIA	--	-	25	1	43	4	--	-	13#	22	180#	28
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	14	1	--	-	--	-	14	2
...TABELLARIACEAE												
....TABELLARIA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	29	2	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....RHODOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	14	1	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	940#	33	260#	21	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	--	-	--	-	--	-	26#	42	210#	32

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

PHYTOPLANKTON ANALYSES, UCTOBER 1977 TO SEPTEMBER 1978

(CONTINUED)

DATE TIME	APR 14,78 1130		MAY 9,78 1335		JUN 7,78 1545		JUL 6,78 1600		AUG 9,78 1045		SEP 13,78 1530	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	--	-	14	1	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	51	2	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06343000 HEART RIVER NEAR SOUTH HEART, ND

LOCATION.--Lat 46°51'56", long 102°56'53", in NE¼SE¼SW¼ sec.8, T.139 N., R.97 W., Stark County, Hydrologic Unit 10130202, on left bank 1.7 mi (2.7 km) downstream from North Creek, 2 mi (3.2 km) east of South Heart, and 5.5 mi (8.8 km) upstream from Edward Arthur Patterson Lake.

DRAINAGE AREA.--315 mi² (816 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1947 to September 1970, October 1977 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 2,429.45 ft (740.496 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records fair except those for Mar. 18-26, which are poor.

AVERAGE DISCHARGE.--25 years, 29.5 ft³/s (0.835 m³/s), 21,370 acre-ft/yr (26.3 hm/yr); median of yearly mean discharges, 30 ft³/s (0.85 m³/s), 21,700 acre-ft/yr (26.7 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,080 ft³/s (229 m³/s) May 9, 1970, gage height, 22.77 ft (6.940 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	1100	206	5.83	5.41	1.649
Mar.23	--	3,000	85.0	a*20.52	6.255
Mar.27	--	*4,070	115	ice jam	
Apr. 4	1600	322	9.12	6.41	1.954
May 9	0745	584	16.5	8.28	2.524
May 13	1045	335	9.49	6.61	2.015

Minimum, 0.20 ft³/s (0.006 m³/s) Nov. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	.76	.80	1.0	.65	.95	500	15	48	5.8	.67	.67
2	101	.94	.80	1.0	.70	.90	232	14	69	4.9	.60	.63
3	59	.70	.75	1.0	.80	.90	160	12	101	4.9	.60	.59
4	40	.65	.70	.95	.90	.90	240	14	66	4.5	.60	.63
5	21	.65	.65	.90	1.0	.90	242	25	37	4.2	.60	.65
6	12	.65	.60	.95	1.0	.85	179	29	25	3.9	.57	.58
7	10	.63	.55	.95	1.0	.80	145	33	17	4.2	.55	.60
8	51	.63	.50	.95	.90	.80	105	185	12	4.2	.53	.56
9	165	.63	.55	1.0	.80	.85	78	507	8.6	4.2	.49	.56
10	131	.65	.60	.95	.75	.95	66	235	6.8	3.6	.51	.57
11	80	.65	.80	.90	.75	1.2	56	106	6.6	3.5	.57	8.4
12	38	.65	.80	.80	.75	1.2	50	100	6.6	3.8	.57	60
13	21	.68	.80	.85	.75	1.3	46	253	6.4	5.4	.56	40
14	13	.68	.90	.85	.75	1.3	43	122	4.9	6.0	.53	21
15	8.0	.70	.95	.80	.75	1.3	39	64	4.9	3.9	.56	8.0
16	5.2	.82	1.0	.85	.80	1.4	38	40	15	3.5	.53	3.6
17	4.1	.94	1.1	.85	.80	1.4	35	26	8.0	3.0	.52	1.7
18	3.0	.68	1.1	.80	.80	1.8	34	18	5.6	2.9	.49	1.3
19	2.2	.76	1.1	.85	.80	3.0	37	15	4.4	3.1	.51	1.0
20	1.9	.60	1.3	.80	.80	10	33	14	3.9	15	.46	1.3
21	1.6	.55	1.2	.75	.80	50	29	12	3.8	14	.47	1.2
22	1.8	.50	1.1	.75	.80	1000	28	9.1	3.6	7.4	.51	.72
23	1.5	.30	1.0	.70	.80	2400	42	8.1	7.8	4.1	.49	.62
24	1.2	.20	.90	.75	.85	1250	33	7.1	12	2.9	.54	.57
25	1.1	.30	1.0	.70	.85	1650	29	6.0	17	2.2	.54	.50
26	.88	.40	1.0	.50	.85	2500	23	5.6	29	1.8	.51	.47
27	.70	.50	1.0	.50	.85	3820	21	5.2	33	1.4	.54	.39
28	.82	.60	.90	.55	.90	2640	20	4.9	20	1.1	.57	.35
29	.76	.70	.95	.55	---	1220	19	4.4	11	.94	.57	.30
30	.76	.80	.90	.60	---	766	17	5.8	7.3	.82	.53	.38
31	.76	---	.95	.60	---	719	---	52	---	.70	.63	---
TOTAL	851.28	18.90	27.25	24.95	22.95	18047.70	2619	1947.2	601.2	131.86	16.92	157.84
MEAN	27.5	.63	.88	.80	.82	582	87.3	62.8	20.0	4.25	.55	5.26
MAX	165	.94	1.3	1.0	1.0	3820	500	507	101	15	.67	60
MIN	.70	.20	.50	.50	.65	.80	17	4.4	3.6	.70	.46	.30
AC-FT	1690	37	54	49	46	35800	5190	3860	1190	262	34	313

WTR YR 1978 TOTAL 24467.05 MEAN 67.0 MAX 3820 MIN .20 AC-FT 48530

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
12...	1530	34	969	8.0	19.5	5.0	9.2	79	330	1100	150
NOV											
15...	1130	.71	1800	8.2	5.0	3.0	11.3	93	K3	110	210
DEC											
14...	1105	.90	3110	8.0	4.5	1.0	12.1	92	K4	190	350
JAN											
19...	1110	.79	3330	7.8	-10.0	.0	9.6	72	<1	50	380
FEB											
21...	0900	.78	3250	7.8	-5.0	.5	10.7	81	K1	150	340
MAR											
10...	1000	.94	3040	8.0	3.5	.0	9.6	72	330	8300	350
30...	1615	745	--	--	15.0	3.0	--	--	--	--	--
APR											
05...	1140	252	762	8.0	12.5	6.0	10.7	94	360	11000	150
MAY											
05...	1000	36	2170	8.1	9.0	11.5	9.0	98	260	170	470
JUN											
13...	0910	6.9	2410	8.4	21.5	19.0	7.7	91	170	310	500
27...	1530	32	--	--	17.0	12.0	--	--	--	--	--
JUL											
20...	0750	11	2120	8.3	18.5	20.0	5.4	64	1000	2400	360
AUG											
02...	0930	.59	2350	8.4	16.0	17.0	7.6	86	1600	1200	350
SEP											
12...	0945	77	1450	8.0	12.0	16.5	6.2	70	K9100	K25000	230

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
12...	23	29	19	150	67	5.3	6.7	155	0	127	2.5
NOV											
15...	0	42	25	350	78	11	6.8	474	0	389	4.8
DEC											
14...	0	65	46	620	79	14	8.0	799	0	655	13
JAN											
19...	0	67	52	680	79	15	7.0	798	0	654	20
FEB											
21...	0	61	46	690	81	16	7.8	852	0	699	22
MAR											
10...	0	59	48	650	79	15	24	781	0	640	12
30...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	42	34	16	100	58	3.5	5.6	132	0	108	2.1
MAY											
05...	130	90	60	360	62	7.2	8.2	410	0	336	5.2
JUN											
13...	150	93	66	420	64	8.1	9.1	422	1	350	2.7
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
20...	0	72	43	400	70	9.2	8.5	470	0	385	3.8
AUG											
02...	0	66	44	500	75	12	8.7	523	2	437	3.4
SEP											
12...	67	40	32	230	67	6.6	11	199	0	163	3.2

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 12...	350	5.9	.2	8.7	641	646	.88	59.3	.04	.05	1.1
NOV 15...	540	8.3	.5	11	1200	1220	1.66	2.3	.00	.01	.63
DEC 14...	1000	21	.8	12	2170	2170	2.95	5.2	--	--	--
JAN 19...	1100	21	.8	14	2350	2340	3.18	4.9	.44	.12	.49
FEB 21...	1000	35	1.0	14	2300	2280	3.10	4.8	.71	.13	.29
MAR 10...	990	38	.9	13	2250	2210	3.01	5.6	.62	2.1	11
30...	--	--	--	--	--	--	--	--	--	--	--
APR 05...	240	3.8	.1	6.3	488	472	.64	321	.26	.23	1.1
MAY 05...	840	14	.3	4.8	1610	1580	2.15	154	.00	.03	1.6
JUN 13...	960	17	.4	4.2	1780	1780	2.42	33.2	.01	.01	1.3
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 20...	770	18	.5	9.6	1560	1550	2.11	47.3	.00	.00	1.2
AUG 02...	970	19	.7	9.8	1890	1880	2.56	2.9	.01	.01	1.4
SEP 12...	560	7.7	.2	4.9	977	984	1.34	205	.81	.01	4.0

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 12...	1.1	1.1	5.0	.22	.09	--	--	--	--	--	--
NOV 15...	.64	.64	2.8	.10	.05	20	--	2	--	--	100
DEC 14...	--	--	--	--	.11	--	--	--	--	--	--
JAN 19...	.61	1.1	4.6	.13	.10	--	--	--	--	--	--
FEB 21...	.42	1.1	5.0	.20	.13	--	--	--	--	--	--
MAR 10...	13	14	60	.38	.31	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
APR 05...	1.3	1.6	6.9	.09	.06	40	3	2	130	200	0
MAY 05...	1.6	1.6	7.1	.11	.03	--	--	--	--	--	--
JUN 13...	1.3	1.3	5.8	.06	.00	20	4	3	13	400	200
27...	--	--	--	--	--	--	--	--	--	--	--
JUL 20...	1.2	1.2	5.3	.10	.02	--	6	--	54	300	--
AUG 02...	1.4	1.4	6.2	.09	.03	10	--	4	--	--	300
SEP 12...	4.0	4.8	21	.73	.10	--	--	--	--	--	--

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
12...	--	--	--	--	300	--	--	--	--	--
NOV										
15...	--	--	0	--	490	--	0	--	--	4
DEC										
14...	--	--	--	--	910	--	--	--	--	--
JAN										
19...	--	--	--	--	940	--	--	--	--	--
FEB										
21...	--	--	--	--	940	--	--	--	--	--
MAR										
10...	--	--	--	--	960	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
APR										
05...	1100	0	10	0	180	3	4	1	10	0
MAY										
05...	--	--	--	--	510	--	--	--	--	--
JUN										
13...	210	10	0	1	650	0	0	0	0	0
27...	--	--	--	--	--	--	--	--	--	--
JUL										
20...	300	10	--	0	570	1	--	0	10	--
AUG										
02...	--	--	0	--	800	--	0	--	--	0
SEP										
12...	--	--	--	--	520	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
12...	--	--	--	--	--	--	--	160	--	--
NOV										
15...	--	--	0	--	--	2	--	80	--	1
DEC										
14...	--	--	--	--	--	--	--	110	--	--
JAN										
19...	--	--	--	--	--	--	--	510	--	--
FEB										
21...	--	--	--	--	--	--	--	120	--	--
MAR										
10...	--	--	--	--	--	--	--	190	--	--
APR										
05...	30	2	1	5	17	2	6	560	--	10
MAY										
05...	--	--	--	--	--	--	--	70	--	--
JUN										
13...	3	2	0	10	12	8	10	40	5	0
JUL										
20...	3	1	--	100	10	--	40	40	4	--
AUG										
02...	--	--	0	--	--	8	--	50	--	0
SEP										
12...	--	--	--	--	--	--	--	110	--	--

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)
OCT 12...	--	--	--	--	--	--	--	--	--	--
NOV 15...	--	--	30	--	60	--	--	.0	--	--
APR 05...	20	10	7	180	60	6900	.6	.0	.03	2
MAY 05...	--	--	--	--	--	--	--	--	--	--
JUN 13...	17	30	30	170	5	1200	.0	.0	.04	8
JUL 20...	0	40	--	290	--	870	.0	--	.30	4
AUG 02...	--	--	40	--	50	--	--	.0	--	--
SEP 12...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)
OCT 12...	--	--	--	--	--	--	--	--	--
NOV 15...	--	2	--	2	--	--	0	--	3.1
APR 05...	1	2	8	0	15	0	0	0	2.0
MAY 05...	--	--	--	--	--	--	--	--	--
JUN 13...	6	5	12	2	17	1	1	0	.0
JUL 20...	4	--	16	--	120	0	--	0	--
AUG 02...	--	1	--	5	--	--	0	--	2.0
SEP 12...	--	--	--	--	--	--	--	--	--

DATE	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT 12...	--	--	--	--	--	--	--	--	--
NOV 15...	--	10	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--
JAN 19...	--	--	--	--	--	--	--	--	--
FEB 21...	--	--	--	--	--	--	--	--	--
MAR 10...	--	--	--	--	--	--	--	--	--
APR 05...	30	10	180	12	19	12	13	--	--
MAY 05...	--	--	--	--	--	--	--	--	--
JUN 13...	30	10	20	--	--	--	--	--	--
JUL 20...	20	--	20	--	--	--	--	--	--
AUG 02...	--	10	--	--	--	--	--	--	--
SEP 12...	--	--	--	<9.7	41	15	63	14	59

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
12...	16	1.7	179	15	--	--	--
NOV							
15...	12	1.7	19	.04	--	--	--
DEC							
14...	13	--	170	.41	--	--	--
JAN							
19...	13	--	101	.22	--	--	--
FEB							
21...	14	.5	129	.27	--	--	--
MAR							
10...	28	1.6	86	.22	--	--	--
30...	--	--	441	887	--	--	--
APR							
05...	10	--	251	171	8	11	18
MAY							
05...	15	1.8	125	12	9	21	40
JUN							
13...	1.0	1.0	108	2.0	--	--	--
27...	--	--	270	23	--	--	--
JUL							
20...	16	1.9	238	7.3	--	--	--
AUG							
02...	18	1.7	134	.21	--	--	--
SEP							
12...	15	>10	1250	260	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT							
12...	--	--	--	--	--	--	--
NOV							
15...	--	--	--	--	--	--	--
DEC							
14...	--	--	--	--	--	--	--
JAN							
19...	--	--	--	--	--	--	--
FEB							
21...	--	--	--	--	--	--	--
MAR							
10...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--
APR							
05...	41	54	64	78	86	93	100
MAY							
05...	53	68	72	76	79	81	100
JUN							
13...	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--
JUL							
20...	--	--	--	--	--	--	--
AUG							
02...	--	--	--	--	--	--	--
SEP							
12...	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUL					
20...	37	--	--	--	--
AUG					
02...	13	.080	.000	7.95	5.43

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	NOV 15,77	DEC 14,77	JAN 19,78	FEB 21,78	MAR 10,78	APR 5,78
TIME	1130	1105	1110	0900	1000	1140
TOTAL CELLS/ML	21000	1300	140	0	630	2900
DIVERSITY: DIVISION	1.5	1.3	1.0	0.0	0.5	0.5
.CLASS	1.5	1.3	1.0	0.0	0.5	0.5
..ORDER	1.5	1.4	1.0	0.0	0.5	0.5
...FAMILY	1.7	1.8	1.5	0.0	0.5	0.6
....GENUS	2.2	2.2	2.0	0.0	0.5	0.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	7400#	35	680#	51	14	10	--	-	--	-	72	3
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	660	3	150	11	--	-	--	-	--	-	--	-
....OOCYSTIS	870	4	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	14	10	--	-	29	5	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	43#	30	--	-	--	-	--	-
....SCENEDESMUS	660	3	130	10	14	10	--	-	--	-	29	1
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-	14	1
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	21	2	--	-	--	-	--	-	14	1
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	29	1
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	--	-	--	-	--	-	29	1
...NITZSCHIACEAE												
....NITZSCHIA	--	-	--	-	57#	40	--	-	29	5	29	1
...SURIRELLACEAE												
....SURIRELLA	--	-	21	2	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	21	2	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	150	11	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	6200#	30	--	-	--	-	--	-	570#	91	2700#	92
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	760	4	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	4400#	21	170	13	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06343000 HEART RIVER NEAR SOUTH HEART, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAY 5,78	JUN 13,78	JUL 20,78	AUG 2,78	SEP 12,78
TIME	1000	0910	0750	0930	0945
TOTAL CELLS/ML	9300	4200	20000	11000	1800
DIVERSITY: DIVISION	1.9	1.1	1.5	1.1	0.4
.CLASS	1.9	1.1	1.5	1.1	0.4
..ORDER	2.4	1.1	2.0	1.6	0.5
...FAMILY	2.7	1.4	2.2	1.8	0.9
....GENUS	2.9	2.7	0.0	2.5	0.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	1700#	18	560	13	1800	9	890	8	14	1
....CHODATELLA	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	500	12	4100#	21	430	4	58	3
....KIRCHNERIELLA	--	-	--	-	--	-	65	1	14	1
....OOCYSTIS	320	3	590	14	500	3	130	1	--	-
....SELENASTRUM	--	-	470	11	1300	7	*	0	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	110	1	--	-
....CRUCIGENIA	--	-	--	-	--	-	430	4	--	-
....SCENEDESMUS	630	7	250	6	620	3	470	4	--	-
....TETRASTRUM	79	1	120	3	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	320	3	--	-	120	1	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	170	2	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	2400#	26	31	1	--	-	110	1	14	1
....MELOSIRA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	31	1	--	-	*	0	--	-
...FRAGILARIACEAE										
....SYNEDRA	79	1	--	-	--	-	65	1	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	*	0	--	-
....NAVICULA	--	-	--	-	370	2	--	-	14	1
...NITZSCHIACEAE										
....NITZSCHIA	1500#	16	--	-	1800	9	65	1	--	-
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	160	2	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	250	1	690	6	--	-
....ANACYSTIS	790	9	--	-	3100#	16	6300#	56	29	2
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	120	7
...OSCILLATORIACEAE	--	-	--	-	5200#	26	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	970	9	1500#	85
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	160	4	250	1	65	1	--	-
....PHACUS	--	-	--	-	*	0	*	0	--	-
....TRACHELOMONAS	1300	15	1500#	35	250	1	86	1	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06343500 EDWARD ARTHUR PATTERSON LAKE NEAR DICKINSON, ND

LOCATION.--Lat 46°52'11", long 102°49'37", in NE¼NW¼SW¼ sec.8, T.139 N., R.96 W., Stark County, Hydrologic Unit 10130202, at left edge of spillway, and 2 mi (3 km) southwest of Dickinson.

DRAINAGE AREA.--400 mi² (1,040 km²), approximately.

PERIOD OF RECORD.--May 1950 to current year. Prior to October 1958, published as Dickinson Reservoir near Dickinson.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation); gage readings have been reduced to elevations NGVD. Prior to Jan. 4, 1961, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam; storage began May 23, 1950; dam completed Aug. 9, 1950. Total capacity is 24,600 acre-ft (30.3 hm³) at maximum pool, elevation, 2,428.9 ft (740.329 m). Dead storage is 1,000 acre-ft (1.23 hm³) below lowest point of outlet, elevation, 2,404.0 ft (732.739 m). Conservation storage is 5,600 acre-ft (6.90 hm³) between elevation 2,404.0 ft (732.739 m) and 2,416.5 ft (736.549 m), crest of spillway. Figures given herein represent total contents based on capacity table dated Jan. 1, 1965. The reservoir is for flood control, irrigation and municipal supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 11,180 acre-ft (13.8 hm³) May 9, 1970, elevation, 2,420.81 ft (737.863 m); minimum since initial filling of reservoir, 2,950 acre-ft (3.64 hm³) Mar. 16, 1962, elevation, 2,410.41 ft (734.693 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,830 acre-ft (12.1 hm³) Mar. 28, elevation, 2,419.70 ft (737.525 m); minimum, 5,440 acre-ft (6.71 hm³) Sept. 10, 11, elevation 2,414.84 ft (736.043 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,416.63	6,780	--
Oct. 31	2,416.49	6,670	-110
Nov. 30	2,416.48	6,660	-10
Dec. 31	2,416.56	6,720	+60
CAL YR 1977	--	--	+2,450
Jan. 31	2,416.51	6,680	-40
Feb. 28	2,416.37	6,570	-110
Mar. 31	2,417.84	7,860	+1,290
Apr. 30	2,416.70	6,840	-1,020
May 31	2,416.73	6,860	+20
June 30	2,416.64	6,790	-70
July 31	2,416.06	6,310	-480
Aug. 31	2,415.13	5,630	-680
Sept. 30	2,415.54	5,930	+300
WTR YR 1978	--	--	-850

06344600 GREEN RIVER NEAR NEW HRADEC, ND

LOCATION.--Lat 47°01'40", long 103°03'10", on line between secs.13 and 14, T.141 N., R.98 W., Billings County, Hydrologic Unit 10130202, on left bank below county highway bridge, and 8 mi (13 km) west of New Hradec.

DRAINAGE AREA.--152 mi² (394 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1964 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--14 years, 18.2 ft³/s (0.515 m³/s), 13,190 acre-ft/yr (16.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,120 ft³/s (117 m³/s) May 9, 1970, gage height, 16.88 ft (5.145 m); maximum gage height, 17.60 ft (5.364 m) Mar. 22, 1978, backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1915	a 1,100	31	a*17.60	5.364	May 8	1545	487	13.8	9.02	2.749
Mar. 26	--	a*1,800	51	--	--	May 13	0015	292	8.27	7.53	2.295
Apr. 4	0630	215	6.09	7.08	2.158	Jun.30	0215	142	4.02	6.13	1.868

Minimum discharge, 0.78 ft³/s (0.022 m³/s) Aug. 20, gage height, 3.08 ft (0.939 m).

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	2.0	3.0	2.4	1.0	1.2	120	5.1	49	25	1.2	14
2	46	2.0	3.0	2.2	1.0	1.2	56	4.5	46	16	1.3	15
3	30	2.0	2.5	2.2	1.0	1.2	50	3.9	32	12	2.7	16
4	19	2.0	2.5	2.0	1.0	1.2	156	4.5	21	8.7	2.5	16
5	14	1.9	2.0	2.0	1.0	1.2	67	5.6	16	6.4	2.3	15
6	8.3	1.8	1.8	1.8	1.0	1.2	53	6.1	13	5.4	2.1	15
7	9.0	1.8	1.8	1.8	1.0	1.2	36	17	9.0	3.7	1.9	14
8	22	1.8	1.5	1.6	1.0	1.5	26	337	6.4	3.1	1.8	15
9	34	1.8	1.5	1.6	1.0	1.8	21	245	4.5	3.1	1.7	14
10	23	1.8	1.5	1.4	1.0	2.0	19	72	3.9	2.7	1.6	15
11	17	1.7	1.8	1.4	1.0	2.5	17	34	3.4	2.5	1.5	40
12	13	1.7	2.0	1.2	1.0	2.5	16	118	3.1	3.1	1.4	70
13	8.7	1.7	2.5	1.2	1.0	2.5	15	161	2.9	3.2	1.3	55
14	6.7	1.7	3.0	1.0	1.0	2.5	15	49	2.5	3.2	1.2	40
15	5.6	1.7	3.5	1.0	1.0	2.5	14	26	3.0	2.8	1.2	25
16	4.7	1.6	4.0	.90	1.0	2.5	13	17	3.6	2.4	1.0	20
17	3.2	1.6	3.9	.90	1.0	2.5	12	14	3.5	2.2	1.0	12
18	3.1	1.6	3.8	.80	1.0	3.0	12	10	2.7	1.8	1.0	8.0
19	2.6	1.6	3.8	.80	1.1	3.0	11	8.6	2.5	2.8	1.0	6.5
20	2.4	1.5	3.6	.80	1.2	3.0	11	7.9	2.4	2.8	1.0	6.2
21	2.2	1.5	3.4	.80	1.3	274	10	7.0	2.2	2.9	1.1	5.9
22	2.2	1.5	3.2	.80	1.4	752	8.7	6.3	2.1	2.9	1.1	5.4
23	2.1	1.3	3.2	.90	1.4	1080	8.7	9.5	2.1	2.7	1.8	5.2
24	2.0	1.3	3.0	1.0	1.5	733	9.4	11	6.4	2.5	2.5	4.9
25	2.0	1.0	3.0	1.0	1.5	541	9.0	6.5	17	2.3	3.9	4.5
26	2.0	1.0	3.0	1.0	1.5	1120	9.0	5.5	17	1.9	7.5	4.1
27	2.0	1.2	2.8	1.0	1.4	1380	8.0	4.7	11	1.7	14	3.9
28	2.0	1.5	2.8	1.0	1.4	645	7.3	4.6	7.0	1.7	16	3.6
29	1.9	2.0	2.6	1.0	---	394	6.4	4.4	11	1.4	13	3.2
30	1.9	3.0	2.6	1.0	---	357	5.6	5.6	85	1.3	13	2.9
31	2.0	---	2.4	1.0	---	360	---	37	---	1.3	14	---
TOTAL	325.6	50.6	85.0	39.50	31.7	7676.2	822.1	1248.3	391.0	135.5	118.6	475.3
MEAN	10.5	1.69	2.74	1.27	1.13	248	27.4	40.3	13.0	4.37	3.83	15.8
MAX	46	3.0	4.0	2.4	1.5	1380	156	337	85	25	16	70
MIN	1.9	1.0	1.5	.80	1.0	1.2	5.6	3.9	2.1	1.3	1.0	2.9
AC-FT	646	100	169	78	63	15230	1630	2480	776	269	235	943

CAL YR 1977 TOTAL 2479.19 MEAN 6.79 MAX 200 MIN .04 AC-FT 4920
WTR YR 1978 TOTAL 11399.40 MEAN 31.2 MAX 1380 MIN .80 AC-FT 22610

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
12...	1400	12	625	8.0	23.5	6.0	11.2	98	70	920	110
17...	1310	3.2	690	--	--	8.0	--	--	--	--	--
NOV											
15...	1100	1.7	975	8.4	4.0	2.0	14.1	107	K6	100	230
16...	1250	1.8	1050	--	--	1.5	--	--	--	--	--
DEC											
15...	1315	3.5	1170	7.8	3.0	.5	10.4	79	K8	K2900	270
19...	1315	4.0	1170	--	--	.0	--	--	--	--	--
JAN											
17...	0915	.90	1210	8.1	-21.0	8.0	8.8	66	K8	440	270
19...	1135	.49	880	--	--	.0	--	--	--	--	--
FEB											
21...	1735	1.3	1040	--	--	.0	--	--	--	--	--
22...	1300	1.4	1140	7.8	.5	.0	7.8	58	440	490	270
MAR											
23...	1200	1080	205	--	--	.0	--	--	--	--	--
25...	1055	484	190	--	--	1.0	--	--	--	--	--
28...	1050	672	165	--	--	3.0	--	--	--	--	--
28...	1500	645	180	6.5	11.0	2.0	10.0	79	K100	19000	40
APR											
05...	1525	75	485	7.8	--	10.0	--	--	--	--	100
05...	1745	72	--	--	--	--	--	--	--	--	--
26...	1030	8.7	1080	8.9	19.0	10.0	--	--	K2	29	230
27...	1515	8.4	1060	--	--	13.0	--	--	--	--	--
MAY											
18...	1320	9.8	890	8.3	19.5	18.5	8.9	103	48	110	210
24...	1530	9.6	1145	--	--	22.0	--	--	--	--	--
JUN											
13...	1445	3.2	1110	8.5	26.0	23.0	9.2	116	150	130	270
23...	1620	2.2	1190	--	--	25.0	--	--	--	--	--
JUL											
20...	1030	2.9	1100	8.1	18.0	19.5	6.7	80	400	800	250
21...	1045	2.9	1090	--	--	18.0	--	--	--	--	--
AUG											
02...	1500	1.3	1120	8.4	15.0	215	8.0	99	150	140	240
15...	1130	5.6	1065	--	--	22.0	--	--	--	--	--
SEP											
14...	1330	40	732	7.9	12.5	13.0	6.6	69	K3900	K1100	130
19...	1345	6.1	775	--	--	9.5	--	--	--	--	--

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
12...	0	23	12	95	65	4.0	5.2	210	0	170	3.4
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	0	45	28	140	57	4.0	5.0	360	5	300	2.4
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	0	54	32	160	56	4.3	5.4	410	0	340	10
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	0	55	33	170	57	4.5	4.4	400	0	330	5.1
19...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	0	55	32	170	57	4.5	4.2	400	0	328	10
MAR											
23...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	0	8.8	4.3	20	49	1.4	4.8	59	0	48	30
APR											
05...	0	23	11	59	54	2.5	5.7	130	0	110	3.3
05...	--	--	--	--	--	--	--	--	--	--	--
26...	0	49	27	160	59	4.6	5.5	290	26	281	.6
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	5	40	26	130	57	3.9	6.1	250	0	210	2.0
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	0	55	33	160	55	4.2	6.1	350	8	300	1.8
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
20...	0	50	30	160	58	4.4	5.6	360	0	295	4.6
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	0	46	31	170	60	4.8	5.5	388	4	325	2.5
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	0	26	15	110	63	4.3	10	220	0	180	4.4
19...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
12...	140	4.1	.2	7.3	395	391	.53	12.7	.09	.08	.80
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	220	5.1	.4	5.3	641	632	.86	2.90	.04	.06	.47
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	290	6.0	.4	13	--	763	1.04	--	.30	.15	.41
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	310	6.2	.4	15	780	791	1.08	1.92	.39	.07	.79
19...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	290	5.8	.4	15	758	770	1.05	2.91	.54	.06	.12
MAR											
23...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	36	2.1	.1	4.3	112	110	.15	192	.37	.29	1.1
APR											
05...	120	2.1	.1	6.4	288	292	.40	59.1	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
26...	290	4.0	.3	5.4	708	711	.97	16.7	.02	.04	1.8
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	270	8.4	.2	4.5	609	609	.83	16.1	.00	.05	1.1
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	280	3.8	.3	6.8	742	726	.99	6.27	.01	.01	1.9
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
20...	270	4.6	.3	9.2	732	708	.96	5.54	.01	.01	5.4
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	280	5.0	.4	6.9	744	741	1.01	2.68	.00	.00	.82
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	180	5.1	.2	8.9	486	464	.63	50.1	.08	.10	1.6
19...	--	--	--	--	--	--	--	--	--	--	--

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)
OCT											
12...	.88	.97	4.3	.18	.05	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	.53	.57	2.5	.05	.02	10	--	1	--	--	0
16...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	.56	.86	3.8	.04	.02	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	.86	1.3	5.5	.05	.03	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
FEB											
21...	--	--	--	--	--	--	--	--	--	--	--
22...	.18	.72	3.2	.05	.02	--	--	--	--	--	--
MAR											
23...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	1.4	1.8	7.8	.34	.07	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
26...	1.8	1.8	8.1	.04	.00	0	3	1	25	100	100
27...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	1.1	1.1	4.9	.11	.03	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	1.9	1.9	8.5	.07	.01	20	3	2	30	300	200
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
20...	5.4	5.4	24	.10	.01	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	.82	.82	3.6	.06	.02	0	--	2	--	--	200
15...	--	--	--	--	--	--	--	--	--	--	--
SEP											
14...	1.7	1.8	7.9	.27	.12	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
12...	--	--	--	--	420	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	0	--	330	--	0	--	--	0
16...	--	--	--	--	--	--	--	--	--	--
DEC										
15...	--	--	--	--	370	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
17...	--	--	--	--	370	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
FEB										
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	370	--	--	--	--	--
MAR										
23...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	90	--	--	--	--	--
APR										
05...	--	--	--	--	120	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
26...	260	0	0	1	320	0	1	0	0	0
27...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	--	--	--	--	300	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
JUN										
13...	35	0	0	0	360	0	0	0	0	0
23...	--	--	--	--	--	--	--	--	--	--
JUL										
20...	--	--	--	--	430	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
AUG										
02...	--	--	0	--	440	--	0	--	--	0
15...	--	--	--	--	--	--	--	--	--	--
SEP										
14...	--	--	--	--	280	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--

DATE	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
12...	--	--	--	--	--	--	--	370	--	--
NOV										
15...	--	--	0	--	--	0	--	80	--	0
DEC										
15...	--	--	--	--	--	--	--	80	--	--
JAN										
17...	--	--	--	--	--	--	--	60	--	--
FEB										
22...	--	--	--	--	--	--	--	30	--	--
MAR										
28...	--	--	--	--	--	--	--	300	--	--
APR										
05...	--	--	--	--	--	--	--	130	--	--
26...	6	1	0	13	4	3	21	50	6	7
MAY										
18...	--	--	--	--	--	--	--	100	--	--
JUN										
13...	2	2	0	7	20	8	6	40	4	0
JUL										
20...	--	--	--	--	--	--	--	50	--	--
AUG										
02...	--	--	0	--	--	4	--	20	--	0
SEP										
14...	--	--	--	--	--	--	--	170	--	--

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)
OCT 12...	--	--	--	--	--	--	--	--	--	--
NOV 15...	--	--	20	--	20	--	--	.0	--	--
APR 05...	--	--	--	--	20	--	--	--	--	--
26...	16	30	20	80	30	500	.0	.0	.13	5
MAY 18...	--	--	--	--	--	--	--	--	--	--
JUN 13...	9	20	20	210	5	330	.0	.0	.02	6
JUL 20...	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	30	--	20	--	--	.0	--	--
SEP 14...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	VANADIUM, DISSOLVED (UG/L AS V) (01085)
OCT 12...	--	--	--	--	--	--	--	--	--
NOV 15...	--	0	--	1	--	--	0	--	.0
APR 05...	--	--	--	--	--	--	--	--	--
26...	1	0	6	2	25	0	0	0	1.0
MAY 18...	--	--	--	--	--	--	--	--	--
JUN 13...	7	5	10	0	7	0	1	0	1.0
JUL 20...	--	--	--	--	--	--	--	--	--
AUG 02...	--	3	--	5	--	--	0	--	1.0
SEP 14...	--	--	--	--	--	--	--	--	--

DATE	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT 12...	--	--	--	--	--	--	--	--	--
NOV 15...	--	6	--	--	--	--	--	--	--
DEC 15...	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--
MAR 28...	--	--	--	--	--	--	--	--	--
APR 05...	--	--	--	--	--	--	--	--	--
26...	10	10	40	9.0	.8	10	2.3	--	--
MAY 18...	--	--	--	--	--	--	--	--	--
JUN 13...	20	10	10	--	--	--	--	--	--
JUL 20...	--	--	--	--	--	--	--	--	--
AUG 02...	--	10	--	--	--	--	--	--	--
SEP 14...	--	--	--	<5.6	6.9	15	6.1	14	5.8

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
OCT								
12...	12	2.7	152	4.9	--	--	--	--
NOV								
15...	8.1	.9	28	.13	--	--	--	--
DEC								
15...	7.3	.4	33	.31	--	--	--	--
JAN								
17...	6.3	.7	32	.08	--	--	--	--
FEB								
22...	5.6	.4	10	.04	--	--	--	--
MAR								
28...	9.0	5.3	213	371	--	--	--	--
APR								
05...	--	--	52	10	27	36	43	50
26...	12	1.2	--	--	--	--	--	--
MAY								
18...	13	1.6	40	1.1	--	--	--	--
JUN								
13...	12	2.2	79	.68	--	--	--	--
JUL								
20...	13	2.4	63	.49	--	--	--	--
AUG								
02...	11	1.4	34	.12	--	--	--	--
SEP								
14...	14	--	150	16	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 128 MM (80175)
OCT							
12...	--	--	--	--	--	--	--
NOV							
15...	--	--	--	--	--	--	--
DEC							
15...	--	--	--	--	--	--	--
JAN							
17...	--	--	--	--	--	--	--
FEB							
22...	--	--	--	--	--	--	--
MAR							
28...	--	--	--	--	--	--	--
APR							
05...	59	68	78	85	92	93	100
26...	--	--	--	--	--	--	--
MAY							
18...	--	--	--	--	--	--	--
JUN							
13...	--	--	--	--	--	--	--
JUL							
20...	--	--	--	--	--	--	--
AUG							
02...	--	--	--	--	--	--	--
SEP							
14...	--	--	--	--	--	--	--

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 12,77		NOV 15,77		DEC 15,77		JAN 17,78		FEB 22,78		MAR 28,78	
TIME	1400		1100		1315		0915		1300		1500	
TOTAL CELLS/ML	2600		1300		130		150		200		6100	
DIVERSITY: DIVISION	0.8		1.2		0.0		1.0		1.3		0.2	
.CLASS	0.8		1.2		0.0		1.0		1.3		0.2	
..ORDER	1.5		1.3		0.3		1.6		1.7		0.4	
...FAMILY	1.7		1.6		2.4		2.7		2.4		0.4	
....GENUS	1.8		2.0		2.5		2.7		2.4		0.7	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....EUTETRAMORUS	120	5	--	-	--	-	--	-	--	-	--	-
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	7	5	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	76	6	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	210	8	190	14	--	-	--	-	18	9	95	2
....CHODATELLA	--	-	13	1	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	13	1	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	160	6	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	29#	19	71#	36	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	1700#	67	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	160	6	13	1	7	5	29#	19	18	9	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	13	1	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	7	5	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	7	5	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	7	5	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	14	11	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	13	1	41#	32	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	*	0	--	-	--	-	--	-
....NAVICULA	41	2	25	2	21#	16	44#	29	36#	18	--	-
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	41	2	38	3	34#	26	22	14	36#	18	95	2
...SURIRELLACEAE												
....CYMATOPLEURA	--	-	--	-	--	-	--	-	--	-	--	-
....SURIRELLA	--	-	--	-	--	-	7	5	*	0	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CENTRITRACTACEAE												
....CENTRITRACTUS	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	41	2	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	25	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06344600 REEN RIVER NEAR NEW HRADEC, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	OCT 12,77 1400		NOV 15,77 1100		DEC 15,77 1315		JAN 17,78 0915		FEB 22,78 1300		MAR 28,78 1500	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....COCCOCHLORIS	--	-	--	-	--	-	--	-	--	-	130	2
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....ARTHROSPIRA	--	-	--	-	--	-	--	-	--	-	380	6
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	5400#	89
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	88	7	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	82	3	840#	63	*	0	7	5	18	9	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 26,78		MAY 18,78		JUN 13,78		JUL 20,78		AUG 2,78		SEP 14,78	
TIME	1030		1320		1445		1030		1500		1330	
TOTAL CELLS/ML	26000		160		15000		14000		13000		10000	
DIVERSITY: DIVISION	1.2		1.0		1.5		1.8		1.6		0.9	
.CLASS	1.2		1.0		1.5		1.8		1.6		0.9	
..ORDER	1.5		1.0		2.0		2.4		2.2		1.0	
...FAMILY	1.6		1.3		2.7		2.8		2.7		1.7	
....GENUS	1.6		1.7		3.3		3.6		3.5		1.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....EUTETRAMORUS	--	-	--	-	--	-	--	-	--	-	--	-
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	380	2	--	-	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	--	-	660	5	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	*	0
....MICRACTINIUM	--	-	--	-	810	5	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	200	1	--	-	2100	13	440	3	500	4	200	2
....CHODATELLA	--	-	--	-	96	1	88	1	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	2100	14	1300	10	370	3	--	-
....KIRCHNERIELLA	--	-	--	-	240	2	--	-	210	2	89	1
....OOCYSTIS	--	-	--	-	570	4	--	-	210	2	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	130	1
....TETRAEDRON	--	-	--	-	--	-	180	1	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	88	1	--	-	*	0
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	360	3
....CRUCIGENIA	--	-	--	-	--	-	350	3	660	5	--	-
....SCENEDESMUS	--	-	--	-	1200	8	1800	13	910	7	--	-
....TETRASTRUM	--	-	--	-	--	-	1100	8	--	-	89	1
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	3600	14	--	-	1100	7	2600#	19	--	-	89	1
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	170	1	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	18000#	69	--	-	140	1	800	6	120	1	290	3
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	*	0
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	29#	18	--	-	--	-	120	1	--	-
....SYNEDRA	200	1	29#	18	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	140	1	350	3	120	1	89	1
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	1400	6	--	-	140	1	350	3	83	1	67	1
...SURIRELLACEAE												
....CYMATOPLEURA	--	-	15	9	--	-	--	-	--	-	--	-
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE												
..HETEROCOCCALES												
...CENTRITRACTACEAE												
....CENTRITRACTUS	--	-	--	-	--	-	88	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	200	1	--	-	--	-	180	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06344600 GREEN RIVER NEAR NEW HRADEC, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE TIME	APR 26,78 1030		MAY 18,78 1320		JUN 13,78 1445		JUL 20,78 1030		AUG 2,78 1500		SEP 14,78 1330	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....ANACYSTIS	1600	6	88#	55	4700#	31	350	3	2200#	17	--	-
....COCCOCHLORIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	1900#	18
...OSCILLATORIACEAE												
....ARTHROSPIRA	--	-	--	-	--	-	--	-	--	-	--	-
....LYNGBYA	--	-	--	-	--	-	--	-	2300#	18	--	-
....OSCILLATORIA	--	-	--	-	530	3	--	-	--	-	6700#	65
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	1400	10	2300#	18	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	330	2	440	3	210	2	89	1
....LEPOCINCLIS	--	-	--	-	*	0	88	1	--	-	*	0
....TRACHELOMONAS	810	3	--	-	570	4	1800	13	1300	10	89	1
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	170	1	--	-
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	88	1	--	-	*	0
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	290	2	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN 13...	26	4.17	.641	28.0	5.10
JUL 20...	37	5.93	1.00	16.7	12.2
AUG 02...	13	1.03	.250	7.09	5.12

06345500 HEART RIVER NEAR RICHARDTON, ND

LOCATION.--Lat 46°44'46", long 102°18'27", in NE¼ sec.29, T.138 N., R.92 W., Stark County, Hydrologic Unit 10130202, on right bank 5 ft (2 m) upstream from bridge on State Highway 8, 0.5 mi (0.8 km) downstream from Plum Creek, and 9.5 mi (15.3 km) south of Richardton.

DRAINAGE AREA.--1,240 mi² (3,210 km²), approximately.

PERIOD OF RECORD.--May 1903 to September 1922, April 1943 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1209: Drainage area. WSP 1239: 1906, 1918(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 2,153.67 ft (656.439 m) National Geodetic Vertical Datum of 1929. May 18, 1903, to Sept. 30, 1922, nonrecording gage at 3 sites in 1 mi (2 km) reach below present site at different datums. Apr. 14, 1943, to July 7, 1947, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by Edward Arthur Patterson Lake (station 06343500) 59 mi (95 km) upstream.

AVERAGE DISCHARGE.--54 years, 106 ft³/s (3.002 m³/s), 76,780 acre-ft/yr (94.7 hm³/yr); median of yearly mean discharges, 96 ft³/s (2.72 m³/s), 69,600 acre-ft/yr (86 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,400 ft³/s (663 m³/s) Apr. 16, 1950, gage height, 28.05 ft (8.550 m), from high-water mark in gage well; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1938, reached a stage of about 26 ft (7.9 m), from information by local residents, discharge, 16,000 ft³/s (453 m³/s); flood of Mar. 25, 1943, reached a stage of 24.2 ft (7.38 m) from floodmarks, discharge, 11,700 ft³/s (331 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,690 ft³/s (274 m³/s) Mar. 27, gage height, 22.14 ft (6.748 m); minimum daily discharge, 9.0 ft³/s (0.254 m³/s) Feb. 3-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	39	25	23	10	50	2100	121	85	61	19	32
2	369	40	25	23	10	55	1430	119	96	56	20	27
3	312	42	25	22	9.0	55	1030	108	102	53	20	24
4	240	41	25	21	9.0	60	872	114	136	79	19	20
5	186	42	24	21	9.0	60	802	121	161	71	19	20
6	119	41	24	20	9.0	55	876	116	153	61	19	20
7	96	39	23	19	9.0	55	720	120	133	55	17	19
8	93	38	23	18	9.0	60	570	198	105	51	17	17
9	172	39	22	17	9.0	50	460	360	88	45	17	16
10	371	37	21	16	9.0	50	388	958	79	41	17	15
11	394	36	21	16	9.0	55	328	856	72	38	17	19
12	302	32	20	14	9.0	60	288	603	70	38	17	237
13	222	36	23	13	9.0	70	296	590	67	34	16	208
14	158	36	23	13	9.0	80	216	572	63	38	16	126
15	120	35	24	13	9.0	85	198	575	66	39	17	184
16	93	32	24	13	9.0	90	197	378	74	34	19	128
17	80	29	25	13	9.0	95	197	264	62	30	17	101
18	72	34	25	13	12	95	198	197	57	27	16	77
19	68	38	26	13	15	120	194	164	56	32	16	60
20	60	19	26	13	20	525	182	146	54	34	16	50
21	55	25	26	13	20	2490	169	130	53	39	16	42
22	52	27	26	12	20	3180	169	120	53	33	16	35
23	51	27	23	12	20	4000	170	107	55	29	17	29
24	47	27	23	12	25	5590	190	102	51	27	18	24
25	45	25	26	12	30	5210	198	89	48	25	19	23
26	44	25	25	12	35	8140	179	81	51	23	19	24
27	42	25	24	12	40	9320	161	77	52	21	18	22
28	42	25	24	11	50	9460	146	73	58	20	18	20
29	43	25	24	11	---	6710	134	71	67	20	25	20
30	40	25	26	11	---	3890	128	70	65	18	26	20
31	40	---	24	11	---	2800	---	74	---	18	34	---
TOTAL	4092	981	745	463	442.0	62615	13186	7674	2332	1190	577	1659
MEAN	132	32.7	24.0	14.9	15.8	2020	440	248	77.7	38.4	18.6	55.3
MAX	394	42	26	23	50	9460	2100	958	161	79	34	237
MIN	40	19	20	11	9.0	50	128	70	48	18	16	15
AC-FT	8120	1950	1480	918	877	124200	26150	15220	4630	2360	1140	3290

CAL YR 1977 TOTAL 34260.6 MEAN 93.9 MAX 2120 MIN 2.5 AC-FT 67960
WTR YR 1978 TOTAL 95956.0 MEAN 263 MAX 9460 MIN 9.0 AC-FT 190300

06346000 LAKE TSCHIDA NEAR GLEN ULLIN, ND

LOCATION.--Lat 46°35'48", long 101°48'34", in SW¼NE¼ sec.13, T.136 N., R.89 W., Grant County, 10 mi (16 km) upstream from Heart Butte Creek, and 14 mi (23 km) north of Elgin.

DRAINAGE AREA.--1,710 mi^2 (4,430 km^2), approximately.

PERIOD OF RECORD.--August 1949 to current year. Prior to October 1957, published as Heart Butte Reservoir near Glen Ullin.

GAGE.--Nonrecording gage. Datum of gage is at National Geodetic Vertical Datum of 1929, levels by Bureau of Reclamation.

REMARKS.--Reservoir is formed by earthfill dam; storage began Sept. 29, 1949; dam completed Dec. 9, 1949. Total capacity is 430,000 acre-ft (530 hm^3) at maximum pool, elevation 2,118.2 ft (645.627 m). Dead storage is 6,750 acre-ft (8.32 hm^3) below lowest point of outlet, elevation 2,030.0 ft (618.744 m). Active conservation storage is 69,030 acre-ft (85.1 hm^3) between elevation 2,030.0 ft (618.744 m) and 2,064.5 ft (629.260 m), crest of spillway. Figures given herein represent total contents. Controlled releases are through 4 by 5 ft (1.219 by 1.524 m) slide gate. The spillway is uncontrolled "glory hole" type and discharges through a conduit 14 ft (4.27 m) in diameter. The reservoir is for flood control, irrigation, and incidental water supply.

COOPERATION.--Record of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 174,000 acre-ft (215 hm^3) Apr. 9, 1952, elevation, 2,086.23 ft (635.883 m); minimum since first reaching spillway level, 40,840 acre-ft (50.4 hm^3) Mar. 6, 1962, elevation, 2,052.5 ft (625.60 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 159,600 acre-ft (197 hm^3) Mar. 30, elevation, 2,083.77 ft (635.133 m); minimum, 65,600 acre-ft (80.9 hm^3) Sept. 11, elevation, 2,061.40 ft (628.315 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,064.62	76,200	--
Oct. 31	2,064.82	76,900	+700
Nov. 30	2,064.60	76,100	-800
Dec. 31	2,064.85	77,000	+900
CAL YR 1977	--	--	+22,400
Jan. 31	2,064.74	76,600	-400
Feb. 28	2,064.50	75,800	-800
Mar. 31	2,083.60	158,700	+82,900
Apr. 30	2,065.70	79,900	-78,800
May 31	2,065.00	77,500	-2,400
June 30	2,065.31	78,600	+1,100
July 31	2,064.16	74,600	-4,000
Aug. 31	2,062.01	67,500	-7,100
Sept. 30	2,062.37	68,700	+1,200
WTR YR 1978	--	--	-7,500

06348000 HEART RIVER NEAR LARK, ND

LOCATION.--Lat 46°36'37", long 101°22'54", in NW¼NW¼SW¼ sec.9, T.136 N., R.85 W., Grant County, Hydrologic Unit 10130203, on right bank 20 ft (6 m) downstream from county highway bridge, 0.6 mi (1.0 km) downstream from Big Muddy Creek, and 10 mi (16 km) north of Lark.

DRAINAGE AREA.--2,750 mi^2 (7,120 km^2), approximately.

PERIOD OF RECORD.--June 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,802.83 ft (549.503 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 16, 1948, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by Lake Tschida 45 mi (72 km) upstream (station 06346000).

AVERAGE DISCHARGE.--32 years, 220 ft^3/s (6.230 m^3/s), 159,400 acre-ft/yr (197 hm^3/yr); median of yearly mean discharges, 170 ft^3/s (4.81 m^3/s), 123,000 acre-ft/yr (150 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft^3/s (827 m^3/s) Apr. 17, 1950, gage height, 20.70 ft (6.309 m), from rating curve extended above 11,000 ft^3/s (312 m^3/s) on basis of contracted-opening measurement of peak flow; no flow Jan. 16 to Mar. 4, 1950, Jan. 17-26, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft^3/s (391 m^3/s) Mar. 27, gage height, 17.04 ft (5.193 m); minimum daily, 13.0 ft^3/s (0.37 m^3/s) Dec. 6, 7, 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	56	20	39	19	75	5700	443	247	226	111	110
2	94	52	18	40	19	90	4940	424	155	252	76	109
3	125	52	17	39	19	95	4440	429	133	273	71	107
4	212	50	17	39	19	95	4440	438	129	248	69	108
5	233	119	15	39	19	95	4900	422	129	210	81	108
6	240	124	13	38	18	95	4730	398	131	190	85	108
7	253	122	13	37	18	95	4360	390	144	164	84	99
8	325	119	14	37	18	95	3970	417	152	144	77	78
9	374	123	14	35	18	95	3660	436	158	120	78	78
10	551	123	13	34	18	110	3480	441	157	110	81	79
11	613	125	13	34	18	120	3390	479	159	100	83	92
12	519	113	15	34	18	120	3270	648	162	90	82	484
13	470	49	16	32	19	120	3130	762	162	85	86	371
14	437	37	17	32	20	120	2780	828	160	80	84	206
15	400	29	22	30	20	120	2060	834	160	75	84	144
16	364	26	30	30	20	125	1620	762	155	75	83	114
17	327	20	35	28	22	140	1320	717	165	70	75	75
18	297	36	38	28	22	140	1100	657	160	65	72	68
19	258	40	40	28	22	150	956	614	150	60	76	63
20	232	46	38	26	22	200	840	578	140	65	73	58
21	239	48	42	26	24	500	756	516	130	80	79	55
22	259	50	41	24	26	2000	687	474	120	114	88	51
23	242	54	40	24	32	3600	675	443	115	120	90	50
24	220	46	40	24	45	7400	648	424	110	140	93	48
25	202	44	40	22	60	6200	622	405	140	150	90	44
26	187	40	39	22	70	9000	588	383	240	140	95	42
27	196	34	38	20	70	12000	555	360	350	135	97	45
28	199	28	37	20	70	11000	521	334	395	130	101	41
29	176	20	36	20	---	7420	495	312	280	125	99	29
30	84	20	38	19	---	6260	466	300	206	118	103	24
31	57	---	38	19	---	6130	---	296	---	116	104	---
TOTAL	8474	1845	847	919	785	73805	71099	15364	5194	4070	2650	3088
MEAN	273	61.5	27.3	29.6	28.0	2381	2370	496	173	131	85.5	103
MAX	613	125	42	40	70	12000	5700	834	395	273	111	484
MIN	57	20	13	19	18	75	466	296	110	60	69	24
AC-FT	16810	3660	1680	1820	1560	146400	141000	30470	10300	8070	5260	6130

CAL YR 1977 TOTAL 52235.0 MEAN 143 MAX 2260 MIN 8.0 AC-FT 103600
WTR YR 1978 TOTAL 188140.0 MEAN 515 MAX 12000 MIN 13 AC-FT 373200

06348490 SWEETBRIAR RESERVOIR NEAR JUDSON, ND

LOCATION.--Lat 46°51'55", long 101°15'35", in SE¼SE¼ sec.10, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, on south shore of reservoir 700 ft (210 m) west of spillway, and 2.5 mi (4.0 km) northeast of Judson.

DRAINAGE AREA.--152 mi^2 (394 km^2).

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,900.00 ft (579.120 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by an earth-fill dam on Interstate 94; storage began April 1964. Capacity at spillway elevation, 1,940.00 ft (591.312 m) is 3,320 acre-ft (4.09 hm^3). Controlled releases are through a 12-inch (0.305 m) pipe. The spillway is an uncontrolled drop-inlet type. Figures herein represent total contents based on capacity table dated June 13, 1967. The reservoir is for recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,220 acre-ft (6.46 hm^3) Apr. 7, 1969, elevation, 1,944.97 ft (592.827 m); minimum since initial filling of reservoir, 2,500 acre-ft (3.08 hm^3) Dec. 8, 1974, elevation, 1,936.93 ft (590.376 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,740 acre-ft (5.84 hm^3) Mar. 27, elevation, 1,943.97 ft (592.522 m); minimum, 2,860 acre-ft (3.53 hm^3) Sept. 27-30, elevation, 1,938.29 ft (590.791 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	*1,940.25	3,400	--
Oct. 31	1,939.87	3,280	-120
Nov. 30	1,940.05	3,340	+60
Dec. 31	1,939.98	3,310	-30
CAL YR 1977	--	--	+490
Jan. 31	1,939.98	3,310	0
Feb. 28	1,940.00	3,320	+10
Mar. 31	1,941.14	3,660	+340
Apr. 30	1,940.12	3,360	-300
May 31	1,939.88	3,290	-70
June 30	1,939.70	3,240	-50
July 31	1,939.38	3,150	-90
Aug. 31	1,938.60	2,940	-210
Sept. 30	1,938.29	2,860	-80
WTR YR 1978	--	--	-540

* Estimated

06348486 SWEETBRIAR LAKE (SHALLOW) NEAR JUDSON, ND

LOCATION.--Lat 46°52'48", long 101°16'53", in NE¼SE¼SE¼ sec.4, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, in middle of old channel about 100 ft (30 m) upstream from bridge located in upstream end, and shallow part of reservoir, 2.7 mi (4.3 km) north of Judson.

PERIOD OF RECORD.--January 1978 to September 1978.

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)
JAN									
13...	1345	1.6	12	--	--	-14.0	20	315	10
13...	1346	1.6	--	980	8.5	--	--	--	--
13...	1347	3.3	--	1120	8.1	--	--	--	--
13...	1348	6.6	--	1320	7.9	--	--	--	--
FEB									
10...	1425	--	22	--	--	-8.0	100	135	10
10...	1427	.0	--	1010	8.1	--	--	--	--
10...	1429	1.6	--	1030	8.2	--	--	--	--
10...	1431	3.3	--	1050	8.2	--	--	--	--
10...	1433	6.6	--	1480	7.7	--	--	--	--
10...	1435	7.5	--	1590	7.6	--	--	--	--
15...	1459	--	12	--	--	-11.0	25	315	5.0
15...	1500	3.3	--	922	8.4	--	--	--	--
15...	1501	6.6	--	985	8.1	--	--	--	--
15...	1502	9.9	--	1455	7.8	--	--	--	--
15...	1503	10	--	1462	7.8	--	--	--	--
MAY									
05...	1300	--	12	--	--	17.5	90	45	10
05...	1310	.0	--	720	8.5	--	--	--	--
05...	1311	1.6	--	720	8.4	--	--	--	--
05...	1312	3.3	--	735	8.4	--	--	--	--
05...	1313	6.6	--	768	8.5	--	--	--	--
05...	1314	10	--	793	8.4	--	--	--	--
05...	1315	12	--	796	8.4	--	--	--	--
JUN									
21...	1355	--	12	--	--	24.0	5	0	.0
21...	1400	.1	--	679	9.3	--	--	--	--
21...	1401	1.6	--	678	9.3	--	--	--	--
21...	1402	3.3	--	775	9.4	--	--	--	--
21...	1403	6.6	--	908	9.3	--	--	--	--
21...	1404	9.9	--	835	9.4	--	--	--	--
JUL									
07...	1345	--	12	--	--	23.0	5	315	5.0
07...	1350	.1	--	732	9.2	--	--	--	--
07...	1351	1.6	--	630	9.0	--	--	--	--
07...	1352	3.3	--	635	9.1	--	--	--	--
07...	1353	6.6	--	644	9.2	--	--	--	--
07...	1354	9.9	--	900	8.3	--	--	--	--
31...	1615	--	11	--	--	24.0	70	270	5.0
31...	1620	1.0	--	--	--	--	--	--	--
31...	1621	1.6	--	--	--	--	--	--	--
31...	1622	3.3	--	635	9.0	--	--	--	--
31...	1623	6.6	--	655	9.0	--	--	--	--
31...	1624	9.9	--	712	9.0	--	--	--	--
AUG									
17...	1416	--	21	--	--	16.0	50	20	270
17...	1417	.0	--	660	9.0	--	--	--	--
17...	1418	1.6	--	652	8.9	--	--	--	--
17...	1422	3.3	--	680	9.0	--	--	--	--
17...	1423	6.6	--	660	9.0	--	--	--	--
17...	1424	9.9	--	662	8.8	--	--	--	--
SEP									
15...	1341	--	10	--	--	23.5	0	135	5.0
15...	1343	.0	--	633	8.6	--	--	--	--
15...	1345	1.6	--	650	8.5	--	--	--	--
15...	1347	3.3	--	715	8.4	--	--	--	--
15...	1349	6.6	--	725	8.3	--	--	--	--

06348486 SWEETBRIAR LAKE (SHALLOW) NEAR JUDSON, ND--Continued

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	BAROMETRIC PRESSURE (MM OF HG) (00025)	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)
JAN								
13...	719	--	--	--	73	--	--	--
13...	--	1.0	--	9.8	--	--	--	--
13...	--	1.5	--	9.2	69	--	--	--
13...	--	1.5	--	5.8	44	--	--	--
FEB								
10...	--	--	30	--	--	--	--	--
10...	--	.3	--	7.3	--	--	--	--
10...	--	.8	--	7.0	--	--	--	--
10...	--	1.0	--	6.3	--	--	--	--
10...	--	.8	--	2.9	--	--	--	--
10...	--	.8	--	2.7	--	--	--	--
15...	711	--	36	--	--	--	--	--
15...	--	1.0	--	8.6	65	.37	.06	.02
15...	--	.8	--	5.7	6	--	--	--
15...	--	.7	--	3.2	5	.39	.03	.01
15...	--	.8	--	3.1	6	--	--	--
MAY								
05...	709	--	26	--	--	--	--	--
05...	--	14.0	--	9.3	96	--	--	--
05...	--	14.0	--	9.1	91	--	--	--
05...	--	14.1	--	9.0	93	.00	.03	.01
05...	--	14.0	--	8.5	88	--	--	--
05...	--	14.0	--	7.9	82	--	--	--
05...	--	14.0	--	7.9	82	--	--	--
JUN								
21...	710	--	28	--	--	--	--	--
21...	--	20.9	--	12.8	153	--	--	--
21...	--	20.0	--	12.6	148	--	--	--
21...	--	18.7	--	10.2	116	--	--	--
21...	--	17.8	--	9.7	111	--	--	--
21...	--	16.9	--	8.1	99	--	--	--
JUL								
07...	713	--	63	--	--	--	--	--
07...	--	24.4	--	5.3	66	--	--	--
07...	--	22.8	--	4.4	55	--	--	--
07...	--	22.5	--	4.3	51	--	--	--
07...	--	22.2	--	4.1	49	--	--	--
07...	--	21.2	--	2.8	33	--	--	--
31...	711	--	62	--	--	--	--	--
31...	--	23.8	--	--	85	--	--	--
31...	--	21.7	--	--	76	--	--	--
31...	--	21.0	--	6.9	82	--	--	--
31...	--	20.5	--	5.4	64	--	--	--
31...	--	20.0	--	2.5	29	--	--	--
AUG								
17...	715	--	31	--	--	--	--	--
17...	--	22.9	--	12.0	146	--	--	--
17...	--	22.8	--	11.1	135	--	--	--
17...	--	22.5	--	9.4	115	.03	.08	.05
17...	--	21.9	--	5.8	77	.03	.09	.06
17...	--	21.6	--	4.0	48	.03	.10	.06
SEP								
15...	706	--	15	--	--	--	--	--
15...	--	16.2	--	8.5	93	--	--	--
15...	--	15.4	--	7.6	82	--	--	--
15...	--	14.8	--	7.5	80	--	--	--
15...	--	14.1	--	6.1	47	--	--	--

DATE	TIME	SAMPLING DEPTH (FT) (00003)	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
FEB					
15...	1500	3.3	4100	19.3	4.25
MAY					
05...	1312	3.3	--	12.9	0.000
JUL					
07...	1352	3.3	4600	5.40	0.000
AUG					
17...	1422	3.3	40000	23.3	0.000

06348486 SWEETBRIAR LAKE (SHALLOW) NEAR JUDSON, ND--Continued

PHYTOPLANKTON ANALYSES, JANUARY 1978 TO SEPTEMBER 1978

DATE	FEB 15,78	JUL 7,78	AUG 17,78
TIME	1500	1352	1422
TOTAL CELLS/ML	4100	4600	40000
DIVERSITY: DIVISION	0.2	0.6	0.1
.CLASS	0.2	0.6	0.1
..ORDER	0.4	0.7	1.0
...FAMILY	0.4	0.9	1.3
....GENUS	0.4	1.0	1.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	*	0
...OOCYSTACEAE						
....ANKISTRODESMUS	*	0	29	1	--	-
....OOCYSTIS	150	4	290	6	*	0
....SELENASTRUM	--	-	43	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	3800#	94	*	0	--	-
...VOLVOCACEAE						
....PANDORINA	--	-	110	2	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	*	0	*	0
...NITZSCHIACEAE						
....NITZSCHIA	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	24000#	59
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	4100	10
....APHANIZOMENON	--	-	3900#	84	8000#	20
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	160	3	3600	9
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....GOMPHOSPHAERIA	--	-	--	-	460	1
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	110	3	57	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06348488 SWEETBRIAR LAKE (DEEP) NEAR JUDSON, ND

LOCATION.--Lat 46°51'52", long 101°15'32", in NW¼SW¼SW¼ sec.11, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, in middle of old channel about 200 ft (60 m) upstream from dam at about the deepest section of the reservoir, 2.6 mi (4.2 km) northeast of Judson.

PERIOD OF RECORD.--January 1978 to September 1978

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	TIME	SAMP- LING DEPTH (FT) (00003)	RESER- VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	TEMPER- ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER- CENT) (00032)	WIND DIREC- TION (DEG. FROM TRUE NORTH) (00036)	WIND VELOC- ITY (MILES PER HOUR) (00035)
JAN											
13...	1125	--	24	39.96	1900.00	--	--	-15.0	30	315	6.0
13...	1126	1.6	--	--	1900.00	895	8.4	--	--	--	--
13...	1127	3.3	--	--	1900.00	910	8.5	--	--	--	--
13...	1128	6.6	--	--	1900.00	905	8.5	--	--	--	--
13...	1129	13	--	--	1900.00	905	8.5	--	--	--	--
13...	1130	19	--	--	1900.00	1000	8.1	--	--	--	--
FEB											
10...	1038	--	23	39.99	1900.00	--	--	-8.0	100	135	12
10...	1140	.0	--	--	1900.00	1010	8.2	--	--	--	--
10...	1141	1.6	--	--	1900.00	1030	8.2	--	--	--	--
10...	1142	3.3	--	--	1900.00	1020	8.2	--	--	--	--
10...	1143	6.6	--	--	1900.00	1026	8.2	--	--	--	--
10...	1144	13	--	--	1900.00	1120	7.8	--	--	--	--
10...	1145	19	--	--	1900.00	1350	7.7	--	--	--	--
10...	1146	22	--	--	1900.00	1350	7.7	--	--	--	--
15...	1159	--	24	--	1900.00	--	--	-10.5	--	0	5.0
15...	1200	3.3	--	--	1900.00	955	8.3	--	--	--	--
15...	1201	6.6	--	--	1900.00	962	8.3	--	--	--	--
15...	1202	13	--	--	1900.00	976	8.2	--	--	--	--
15...	1203	16	--	--	1900.00	1010	7.8	--	--	--	--
15...	1204	19	--	--	1900.00	1168	7.9	--	--	--	--
15...	1205	21	--	--	1900.00	1232	7.8	--	--	--	--
MAY											
05...	1125	--	30	40.06	1900.00	--	--	16.0	100	45	7.0
05...	1130	.0	--	--	1900.00	407	8.7	--	--	--	--
05...	1131	1.6	--	--	1900.00	407	8.7	--	--	--	--
05...	1132	3.3	--	--	1900.00	406	8.7	--	--	--	--
05...	1133	6.6	--	--	1900.00	406	8.7	--	--	--	--
05...	1134	13	--	--	1900.00	409	8.7	--	--	--	--
05...	1135	19	--	--	1900.00	408	8.7	--	--	--	--
05...	1136	26	--	--	1900.00	402	8.3	--	--	--	--
JUN											
21...	1129	--	30	39.62	1900.00	--	--	21.5	5	225	5.0
21...	1130	.0	--	--	1900.00	557	8.9	--	--	--	--
21...	1131	1.6	--	--	1900.00	557	8.9	--	--	--	--
21...	1132	3.3	--	--	1900.00	557	8.9	--	--	--	--
21...	1133	6.6	--	--	1900.00	557	8.9	--	--	--	--
21...	1134	13	--	--	1900.00	555	8.9	--	--	--	--
21...	1135	19	--	--	1900.00	557	8.9	--	--	--	--
21...	1136	26	--	--	1900.00	558	8.8	--	--	--	--

06348488 SWEETBRIAR LAKE (DEEP) NEAR JUDSON, ND--Continued

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
JAN										
13...	719	--	--	--	--	--	--	--	--	--
13...	--	1.5	--	8.0	60	--	--	--	--	--
13...	--	2.0	--	8.1	61	--	--	--	--	--
13...	--	2.0	--	7.2	54	--	--	--	--	--
13...	--	2.0	--	5.6	42	--	--	--	--	--
13...	--	2.0	--	2.9	28	--	--	--	--	--
FEB										
10...	--	--	49	--	--	--	--	--	--	--
10...	--	1.0	--	5.4	--	--	--	--	--	--
10...	--	1.9	--	5.4	--	--	--	--	--	--
10...	--	2.3	--	5.3	--	--	--	--	--	--
10...	--	2.4	--	5.1	--	--	--	--	--	--
10...	--	3.0	--	1.3	--	--	--	--	--	--
10...	--	3.4	--	1.0	--	--	--	--	--	--
10...	--	3.4	--	.9	--	--	--	--	--	--
15...	--	--	55	--	--	190	0	39	22	180
15...	--	1.6	--	5.9	45	--	--	--	--	--
15...	--	2.4	--	5.9	45	--	--	--	--	--
15...	--	2.8	--	4.4	34	--	--	--	--	--
15...	--	3.2	--	1.5	12	--	--	--	--	--
15...	--	3.3	--	.9	7	--	--	--	--	--
15...	--	3.3	--	1.1	8	--	--	--	--	--
MAY										
05...	709	--	26	--	--	--	--	--	--	--
05...	--	11.2	--	11.2	109	--	--	--	--	--
05...	--	11.2	--	11.2	109	--	--	--	--	--
05...	--	11.2	--	11.1	108	--	--	--	--	--
05...	--	11.2	--	11.1	108	--	--	--	--	--
05...	--	11.2	--	10.8	103	--	--	--	--	--
05...	--	11.2	--	10.8	103	--	--	--	--	--
05...	--	10.0	--	8.0	76	--	--	--	--	--
JUN										
21...	711	--	49	--	--	--	--	--	--	--
21...	--	18.9	--	11.0	126	--	--	--	--	--
21...	--	18.9	--	10.8	124	--	--	--	--	--
21...	--	19.0	--	10.6	122	--	--	--	--	--
21...	--	18.9	--	8.5	98	--	--	--	--	--
21...	--	18.8	--	9.9	114	--	--	--	--	--
21...	--	18.6	--	7.7	88	--	--	--	--	--
21...	--	18.5	--	7.6	87	--	--	--	--	--

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
FEB										
15...	66	5.7	8.3	443	0	363	220	5.9	.2	4.8
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N) (00633)	NITRO-GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) (00626)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P) (00668)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)
FEB										
15...	753	700	1.02	--	.0	3330	--	--	50	10
15...	--	--	--	.37	--	--	.07	.04	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	.29	--	--	6.0	.03	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	.25	--	--	4.0	.02	--	--
MAY										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	.24	--	--	.03	.01	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--

06348488 SWEETBRIAR LAKE (DEEP) NEAR JUDSON, ND--Continued

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	CYANIDE TOTAL (MG/L AS CN) (00720)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
FEB										
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
15...	2	100	290	1	0	0	0	.00	240	2
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG. FROM TRUE NORTH) (00036)
JUL										
07...	1055	--	30	39.73	1900.00	--	--	23.5	10	315
07...	1100	.0	--	--	1900.00	541	9.0	--	--	--
07...	1101	1.6	--	--	1900.00	540	9.0	--	--	--
07...	1102	3.3	--	--	1900.00	539	9.0	--	--	--
07...	1103	6.6	--	--	1900.00	538	9.0	--	--	--
07...	1104	13	--	--	1900.00	536	8.7	--	--	--
07...	1105	19	--	--	1900.00	542	8.0	--	--	--
07...	1106	26	--	--	1900.00	550	8.1	--	--	--
13...	1514	.0	31	22.90	1900.00	551	8.8	23.0	0	202
13...	1515	1.6	--	--	1900.00	551	8.8	--	--	--
13...	1516	3.3	--	--	1900.00	--	--	--	--	--
13...	1517	6.6	--	--	1900.00	551	8.8	--	--	--
13...	1518	13	--	--	1900.00	551	8.8	--	--	--
13...	1519	19	--	--	1900.00	551	8.8	--	--	--
13...	1520	26	--	--	1900.00	551	8.7	--	--	--
13...	1521	28	--	--	1900.00	551	8.7	--	--	--
13...	1522	28	--	--	1900.00	--	--	--	--	--
13...	1523	28	--	--	1900.00	--	--	--	--	--
31...	1225	--	31	39.39	1900.00	--	--	23.0	20	270
31...	1230	.1	--	--	1900.00	554	9.3	--	--	--
31...	1231	1.6	--	--	1900.00	555	9.3	--	--	--
31...	1232	3.3	--	--	1900.00	553	9.3	--	--	--
31...	1233	6.6	--	--	1900.00	553	9.2	--	--	--
31...	1234	13	--	--	1900.00	553	9.2	--	--	--
31...	1235	19	--	--	1900.00	554	9.2	--	--	--
31...	1236	26	--	--	1900.00	555	9.1	--	--	--
31...	1237	29	--	--	1900.00	555	9.1	--	--	--
AUG										
17...	1135	--	30	38.96	1900.00	--	--	21.0	80	315
17...	1137	3.3	--	--	1900.00	536	9.2	--	--	--
17...	1139	1.6	--	--	1900.00	538	9.2	--	--	--
17...	1140	3.3	--	--	1900.00	538	9.2	--	--	--
17...	1141	6.6	--	--	1900.00	538	9.2	--	--	--
17...	1143	13	--	--	1900.00	538	9.3	--	--	--
17...	1145	19	--	--	1900.00	538	9.3	--	--	--
17...	1147	26	--	--	1900.00	538	9.2	--	--	--
17...	1149	29	--	--	1900.00	552	8.5	--	--	--
SEP										
15...	1049	--	30	38.42	1900.00	--	--	17.5	2	135
15...	1051	.0	--	--	1900.00	572	8.0	--	--	--

06348488 SWEETBRIAR LAKE (DEEP) NEAR JUDSON, ND--Continued

WATER QUALITY DATA, JANUARY 1978 TO SEPTEMBER 1978

DATE	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)
JUL									
07...	10	714	--	55	--	--	--	--	--
07...	--	--	23.7	--	8.5	107	--	--	--
07...	--	--	23.6	--	8.6	108	--	--	--
07...	--	--	23.6	--	8.7	109	--	--	--
07...	--	--	23.5	--	8.0	100	--	--	--
07...	--	--	23.0	--	5.5	100	--	--	--
07...	--	--	19.5	--	.8	68	--	--	--
07...	--	--	18.3	--	.7	9	--	--	--
13...	10	--	220	--	7.6	114	--	--	.04
13...	--	--	21.8	--	7.5	115	--	--	.04
13...	--	--	--	--	--	115	--	--	.04
13...	--	--	21.6	--	7.0	106	--	--	.04
13...	--	--	21.1	--	6.3	94	--	--	.04
13...	--	--	21.1	--	6.3	94	--	--	.04
13...	--	--	21.0	--	5.6	82	--	--	.04
13...	--	--	21.0	--	5.1	75	--	--	--
13...	--	--	--	--	--	--	.04	.04	--
13...	--	--	--	--	--	--	--	.01	--
31...	6.0	712	--	38	--	--	--	--	--
31...	--	--	22.7	--	12.0	169	--	--	--
31...	--	--	22.7	--	12.0	169	--	--	--
31...	--	--	22.5	--	11.3	144	--	--	--
31...	--	--	22.3	--	7.8	132	--	--	--
31...	--	--	21.8	--	7.2	116	--	--	--
31...	--	--	21.7	--	7.2	118	--	--	--
31...	--	--	21.7	--	7.0	111	--	--	--
31...	--	--	21.6	--	6.9	111	--	--	--
AUG									
17...	15	707	--	32	--	--	--	--	--
17...	--	--	22.3	--	9.6	117	.02	.03	.02
17...	--	--	22.3	--	9.9	121	--	--	--
17...	--	--	22.2	--	--	114	.01	.03	.01
17...	--	--	22.3	--	9.4	114	.01	.29	.20
17...	--	--	22.3	--	9.4	113	--	--	--
17...	--	--	22.3	--	9.3	113	--	--	--
17...	--	--	22.2	--	8.4	102	--	--	--
17...	--	--	19.8	--	.0	0	--	--	--
SEP									
15...	3.0	707	--	22	--	--	--	--	--
15...	--	--	17.6	--	8.3	92	--	--	--

DATE	TIME	SAMPLING DEPTH (FT) (00003)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
SEP								
15...	1053	1.6	1900.00	572	9.0	17.6	8.2	91
15...	1055	3.3	1900.00	572	9.0	17.5	8.0	89
15...	1057	6.6	1900.00	570	9.1	17.5	7.8	87
15...	1059	13	1900.00	570	9.1	17.4	7.7	86
15...	1101	19	1900.00	572	9.1	17.4	7.7	86
15...	1103	26	1900.00	572	9.2	17.3	7.7	86

DATE	TIME	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	SAMPLING DEPTH (FT) (00003)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
FEB											
15...	1159	720	.0	3	0	2	--	20	--	--	--
15...	1200	--	--	--	--	--	3.3	--	17	0.180	0.000
MAY											
05...	1132	--	--	--	--	--	3.3	--	--	24.7	0.000
JUL											
07...	1102	--	--	--	--	--	3.3	--	80000	45.2	0.000
AUG											
17...	1137	--	--	--	--	--	3.3	--	150000	109	0.000

06348488 SWEETBRIAR LAKE (DEEP) NEAR JUDSON, ND--Continued

PHYTOPLANKTON ANALYSES, JANUARY 1978 TO SEPTEMBER 1978

DATE	FEB 15,78	JUL 7,78	AUG 17,78
TIME	1200	1102	1137
TOTAL CELLS/ML	17	80000	150000
DIVERSITY: DIVISION	0.0	0.5	0.0
.CLASS	0.0	0.5	0.0
..ORDER	0.0	0.7	0.0
...FAMILY	0.0	0.7	0.2
....GENUS	0.0	0.8	0.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	580	1	--	-
...OOCYSTACEAE						
....OOCYSTIS	--	-	1800	2	--	-
....SELENASTRUM	--	-	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	700	1	--	-
....SCENEDESMUS	--	-	*	0	--	-
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	*	0	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	*	0	--	-
....CHLAMYDOMONAS	17#	100	*	0	--	-
...PHACOTACEAE						
....PHACOTUS	--	-	*	0	--	-
....PTEROMONAS	--	-	*	0	--	-
...VOLVOCACEAE						
....PANDORINA	--	-	2500	3	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	*	0	*	0
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	5900	4
....APHANIZOMENON	--	-	71000#	90	140000#	94
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	2700	2
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	*	0	--	-
....TRACHELOMONAS	--	-	1000	1	--	-

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06348500 SWEETBRIAR CREEK NEAR JUDSON, ND

LOCATION.--Lat 46°51'06", long 101°15'10", in SW¼ sec.14, T.139 N., R.84 W., Morton County, Hydrologic Unit 10130203, on right bank 80 ft (24 m) downstream from bridge on county highway, 2 mi (3 km) northeast of Judson, and 16 mi (26 km) upstream from mouth.

DRAINAGE AREA.--157 mi² (407 km²).

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 1439: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,886.42 ft (574.981 m) National Geodetic Vertical Datum of 1929. Prior to July 20, 1955, nonrecording gage 80 ft (24 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Sweetbriar Reservoir (station 06348490) 2 mi (3 km) upstream since April 1964.

AVERAGE DISCHARGE.--27 years, 11.2 ft³/s (0.317 m³/s), 8,110 acre-ft/yr (10.0 hm³/yr); median of yearly mean discharges, 8.4 ft³/s (0.24 m³/s), 6,100 acre-ft/yr (7.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s (119 m³/s) Apr. 7, 1969, gage height, 11.28 ft (3.438 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 12.5 ft (3.81 m) Apr. 17, 1950, from floodmarks at present site, discharge, 5,910 ft³/s (167 m³/s) from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,480 ft³/s (70.2 m³/s) Mar. 27, gage height, 9.05 ft (2.758 m); minimum daily, 0.27 ft³/s (0.008 m³/s) Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	.96	1.6	1.6	.60	.60	293	7.3	4.0	1.1	.50	1.1
2	6.8	.96	1.6	1.6	.60	.55	154	6.7	3.6	.82	.50	1.0
3	5.8	.96	1.6	1.6	.60	.55	97	5.9	3.5	.77	.39	1.1
4	6.3	.68	1.4	1.4	.50	.55	175	5.5	3.5	.82	.39	.96
5	5.3	.68	1.1	1.4	.40	.55	190	5.8	3.5	.88	.37	.90
6	3.9	.76	1.1	1.3	.40	.50	165	5.1	3.6	.73	.31	.97
7	6.9	.76	1.2	1.2	.40	.50	120	5.9	3.6	.74	.38	1.0
8	7.6	1.6	1.2	1.2	.46	.50	77	9.8	3.6	.64	.32	1.0
9	13	1.6	1.2	1.2	.46	.60	53	6.9	3.6	.73	.35	.94
10	57	1.1	1.2	1.2	.46	.80	40	6.5	3.6	.64	.38	.77
11	44	.86	1.3	1.2	.52	3.0	33	6.7	3.8	.63	.74	2.3
12	31	.68	1.3	1.2	.52	5.0	32	10	3.8	.88	3.4	1.3
13	22	.68	1.3	1.2	.52	8.0	25	9.7	3.7	.70	3.4	.53
14	14	.68	1.3	1.2	.52	10	23	8.1	3.7	.49	3.1	.46
15	8.9	1.4	1.2	1.2	.52	7.0	22	6.7	7.2	.49	.91	.55
16	8.2	1.1	2.8	1.2	.60	5.0	20	6.0	5.8	.48	.40	.53
17	8.8	1.6	4.0	1.2	.60	4.0	21	5.5	3.6	.39	.27	.60
18	4.6	.86	3.6	1.2	.60	8.0	26	5.0	3.5	.43	.30	.71
19	4.5	.68	3.3	1.1	.60	15	22	6.6	3.7	.75	3.1	.72
20	4.6	.76	3.0	1.0	.60	50	15	4.8	3.6	.44	3.2	.68
21	4.1	1.4	2.8	1.0	.60	200	14	4.0	3.5	.51	3.0	.71
22	3.9	1.2	2.6	1.0	.65	500	15	3.8	3.6	.46	1.2	.61
23	3.9	1.7	2.5	.76	.70	1010	17	3.7	3.6	.45	1.2	.60
24	3.9	1.7	2.2	.68	.70	803	14	4.5	3.7	.46	1.1	.65
25	4.1	1.8	2.0	.60	.70	700	12	4.3	3.8	.38	1.2	.63
26	3.9	1.8	1.8	.68	.65	1440	10	4.3	3.5	.38	1.2	.60
27	3.2	1.8	1.8	.60	.65	2140	9.2	3.6	1.2	.40	1.2	.65
28	.96	1.8	1.8	.60	.60	1380	9.2	3.5	1.1	.39	1.2	.68
29	.76	1.7	1.7	.60	---	519	9.0	3.6	2.9	.46	1.3	.81
30	.68	1.7	1.7	.60	---	547	7.7	3.7	2.1	.40	1.3	.86
31	1.1	---	1.7	.60	---	470	---	3.8	---	.38	1.3	---
TOTAL	302.50	35.96	58.9	33.12	15.73	9829.70	1720.1	177.3	107.5	18.22	37.91	24.92
MEAN	9.76	1.20	1.90	1.07	.56	317	57.3	5.72	3.58	.59	1.22	.83
MAX	57	1.8	4.0	1.6	.70	2140	293	10	7.2	1.1	3.4	2.3
MIN	.68	.68	1.1	.60	.40	.50	7.7	3.5	1.1	.38	.27	.46
AC-FT	600	71	117	66	31	19500	3410	352	213	36	75	49

CAL YR 1977 TOTAL 1298.64 MEAN 3.56 MAX 224 MIN .20 AC-FT 2580
WTR YR 1978 TOTAL 12361.86 MEAN 33.9 MAX 2140 MIN .27 AC-FT 24520

06348880 CROWN BUTTE LAKE (SHALLOW) NEAR MANDAN, ND

LOCATION.--Lat 46°52'10", long 101°05'33", in NE¼NE¼SE¼ sec.12, T.139 N., R.83 W., Morton County, Hydrologic Unit 10130203, in middle of old channel about 600 ft (180 m) downstream from bridge at upstream end and shallow part of reservoir, 10 mi (16 km) west of Mandan.

PERIOD OF RECORD.--March 1978 to September 1978.

WATER QUALITY DATA, MARCH 1978 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)
MAR									
10...	1425	--	7.7	--	--	4.0	50	315	5.0
10...	1430	3.3	--	852	8.2	--	--	--	--
10...	1431	6.6	--	834	8.2	--	--	--	--
MAY									
10...	1350	--	11	--	--	25.5	50	225	15
10...	1355	.1	--	694	8.6	--	--	--	--
10...	1356	1.6	--	695	8.6	--	--	--	--
10...	1357	3.3	--	660	8.6	--	--	--	--
10...	1358	6.6	--	702	8.6	--	--	--	--
10...	1359	11	--	840	8.5	--	--	--	--
JUN									
22...	1305	--	13	--	--	28.0	40	135	2.0
22...	1310	.0	--	702	8.4	--	--	--	--
22...	1311	1.6	--	703	8.5	--	--	--	--
22...	1312	3.3	--	705	8.5	--	--	--	--
22...	1313	6.6	--	702	8.4	--	--	--	--
22...	1314	9.9	--	720	8.1	--	--	--	--
AUG									
02...	1149	--	11	--	--	18.0	70	315	15
02...	1151	.0	--	693	8.4	--	--	--	--
02...	1153	1.6	--	694	8.4	--	--	--	--
02...	1252	3.3	--	694	8.4	--	--	--	--
02...	1253	6.6	--	694	8.4	--	--	--	--
02...	1254	9.9	--	694	8.4	--	--	--	--

DATE	BAROMETRIC PRESSURE (MM OF HG) (00025)	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)
MAR								
10...	708	--	31	--	--	--	--	--
10...	--	.6	--	11.9	88	.32	.01	.01
10...	--	1.4	--	10.0	76	--	--	--
MAY								
10...	744	--	61	--	--	--	--	--
10...	--	13.5	--	11.3	110	--	--	--
10...	--	13.5	--	11.2	109	--	--	--
10...	--	13.4	--	10.7	104	.01	.01	.01
10...	--	13.5	--	10.7	104	--	--	--
10...	--	12.5	--	10.3	98	--	--	--
JUN								
22...	710	--	45	--	--	--	--	--
22...	--	21.0	--	12.1	145	--	--	--
22...	--	20.9	--	11.4	136	--	--	--
22...	--	20.8	--	11.2	134	.14	.03	.01
22...	--	20.4	--	10.3	122	.14	.03	.01
22...	--	19.3	--	8.1	98	.13	.03	.02
AUG								
02...	719	--	25	--	--	--	--	--
02...	--	20.2	--	6.1	72	--	--	--
02...	--	20.2	--	6.2	73	--	--	--
02...	--	20.2	--	6.2	73	.02	.02	.01
02...	--	20.2	--	6.2	73	.02	.03	.01
02...	--	20.2	--	6.1	72	.02	.02	.01

DATE	TIME	SAMPLING DEPTH (FT) (00003)	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
MAR					
10...	1430	3.3	2500	23.7	5.23
MAY					
10...	1357	3.3	25000	11.8	0.000
AUG					
02...	1252	3.3	51000	12.1	0.000

06348880 CROWN BUTTE LAKE (SHALLOW) NEAR MANDAN, ND--Continued

PHYTOPLANKTON ANALYSES, MARCH 1978 TO SEPTEMBER 1978

DATE	MAR 10,78	MAY 10,78	JUN 22,78	AUG 2,78
TIME	1430	1357	1312	1252
TOTAL CELLS/ML	2500	25000	1300	51000
DIVERSITY: DIVISION	1.3	0.6	0.6	0.5
.CLASS	1.3	0.6	0.6	0.5
..ORDER	1.5	0.6	0.8	1.3
...FAMILY	1.6	0.6	0.9	1.3
....GENUS	1.9	0.7	0.9	2.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	67	5	*	0
...OOCYSTACEAE								
....ANKISTRODESMUS	68	3	130	1	--	-	1600	3
....KIRCHNERIELLA	--	-	--	-	--	-	*	0
....OOCYSTIS	--	-	--	-	--	-	420	1
....SELENASTRUM	--	-	--	-	--	-	570	1
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	300	1	45	4	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	420	1
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	540#	21	--	-	--	-	--	-
....CHLAMYDOMONAS	290	12	*	0	89	7	--	-
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	310	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	45	2	270	1	--	-	360	1
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	*	0
...FRAGILARIACEAE								
....SYNEDRA	--	-	490	2	--	-	*	0
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	*	0	--	-	520	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	68	3	*	0	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	1400#	54	700	3	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	620	1
....ANACYSTIS	--	-	210	1	--	-	24000#	47
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	1100#	84	--	-
....APHANIZOMENON	--	-	--	-	--	-	11000#	21
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	--	-	23000#	91	--	-	11000#	22
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	*	0	--	-	--	-
....TRACHELOMONAS	160	6	*	0	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	*	0	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
      * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06348882 CROWN BUTTE LAKE (DEEP) NEAR MANDAN, ND

LOCATION.--Lat 46°51'54", long 101°05'14", in NE¼SW¼SW¼ sec.7, T.139 N., R.82 W., Morton County, Hydrologic Unit 10130203, in middle of old channel about 50 ft (15 m) upstream from dam at about the deepest section of the reservoir, 10 mi (16 km) west of Mandan.

PERIOD OF RECORD.--March 1978 to September 1978.

WATER QUALITY DATA, MARCH 1978 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
MAR										
10...	1225	--	30	--	--	3.5	90	315	7.0	707
10...	1230	3.3	--	873	8.0	--	--	--	--	--
10...	1231	6.6	--	871	8.0	--	--	--	--	--
10...	1232	13	--	865	8.0	--	--	--	--	--
10...	1236	19	--	920	7.8	--	--	--	--	--
10...	1238	26	--	956	7.7	--	--	--	--	--
10...	1240	30	--	983	7.8	--	--	--	--	--
10...	1250	--	--	--	--	--	--	--	--	--
MAY										
10...	1115	--	30	--	--	23.5	30	225	10	745
10...	1120	.1	--	689	8.6	--	--	--	--	--
10...	1121	1.6	--	686	8.6	--	--	--	--	--
10...	1122	3.3	--	670	8.6	--	--	--	--	--
10...	1123	6.6	--	685	8.6	--	--	--	--	--
10...	1124	13	--	690	8.5	--	--	--	--	--
10...	1125	19	--	702	8.5	--	--	--	--	--
10...	1126	24	--	710	8.3	--	--	--	--	--
JUN										
22...	1050	--	31	--	--	27.0	90	135	5.0	710
22...	1051	.1	--	708	8.2	--	--	--	--	--
22...	1052	1.6	--	708	8.3	--	--	--	--	--
22...	1053	3.3	--	708	8.3	--	--	--	--	--
22...	1054	6.6	--	705	8.3	--	--	--	--	--
22...	1055	13	--	708	8.2	--	--	--	--	--
22...	1056	19	--	711	8.2	--	--	--	--	--
22...	1101	26	--	707	8.0	--	--	--	--	--
AUG										
02...	1003	--	30	--	--	16.5	20	270	10	720
02...	1005	.0	--	692	8.4	--	--	--	--	--
02...	1007	3.3	--	693	8.4	--	--	--	--	--
02...	1009	3.3	--	693	8.4	--	--	--	--	--
02...	1012	6.6	--	692	8.4	--	--	--	--	--
02...	1016	19	--	--	--	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR									
10...	--	90	--	--	--	--	--	--	--
10...	1.0	--	8.0	61	--	--	--	--	--
10...	1.5	--	7.3	56	--	--	--	--	--
10...	2.4	--	4.8	38	--	--	--	--	--
10...	3.1	--	1.6	13	--	--	--	--	--
10...	3.4	--	.4	3	--	--	--	--	--
10...	3.9	--	.2	2	--	--	--	--	--
10...	--	--	--	--	260	0	57	29	110
MAY									
10...	--	70	--	--	--	--	--	--	--
10...	12.0	--	10.3	97	--	--	--	--	--
10...	12.0	--	10.3	97	--	--	--	--	--
10...	12.1	--	10.3	97	--	--	--	--	--
10...	12.0	--	10.2	96	--	--	--	--	--
10...	11.0	--	9.2	94	--	--	--	--	--
10...	10.5	--	7.8	72	--	--	--	--	--
10...	10.2	--	5.4	49	--	--	--	--	--
JUN									
22...	--	28	--	--	--	--	--	--	--
22...	18.7	--	9.0	98	--	--	--	--	--
22...	18.7	--	8.7	99	--	--	--	--	--
22...	18.7	--	8.6	98	--	--	--	--	--
22...	18.3	--	8.1	91	--	--	--	--	--
22...	18.1	--	7.7	87	--	--	--	--	--
22...	17.8	--	6.2	69	--	--	--	--	--
22...	17.3	--	3.0	33	--	--	--	--	--
AUG									
02...	--	26	--	--	--	--	--	--	--
02...	21.1	--	6.1	72	--	--	--	--	--
02...	21.1	--	6.1	72	--	--	--	--	--
02...	21.1	--	6.1	72	--	--	--	--	--
02...	21.1	--	6.1	72	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--

06348882 CROWN BUTTE LAKE (DEEP) NEAR MANDAN, ND--Continued

WATER QUALITY DATA, MARCH 1978 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD- SURP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
MAR									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	46	3.0	16	391	0	321	170	6.9	.1

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
MAR									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	.17	.01	.00	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	.10	.07	.01	--	--
10...	--	--	--	--	.06	.09	.01	--	--
10...	--	--	--	--	--	--	--	--	--
10...	9.7	608	594	.83	--	--	--	1100	160
MAY									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	.03	.02	.01	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	.05	.02	.01	--	--
JUN									
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	.14	.04	.02	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	.13	.04	.02	--	--
22...	--	--	--	--	.11	.04	.02	--	--
AUG									
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	.02	.03	.01	--	--
02...	--	--	--	--	.02	.03	.01	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	.02	.03	.01	--	--

DATE	TIME	SAMP- LING DEPTH (FT) (00003)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML) (60050)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)
MAR					
10...	1230	3.3	230	7.30	0.700
MAY					
10...	1122	3.3	2000	13.7	0.000
AUG					
02...	1007	3.3	70000	20.7	0.000

06348882 CROWN BUTTE LAKE (DEEP) NEAR MANDAN, ND--Continued

PHYTOPLANKTON ANALYSES, MARCH 1978 TO SEPTEMBER 1978

DATE	MAR 10,78	MAY 10,78	JUN 22,78	AUG 2,78
TIME	1230	1122	1057	1007
TOTAL CELLS/ML	230	2000	26000	70000
DIVERSITY: DIVISION	2.0	2.0	0.2	0.3
.CLASS	2.0	2.0	0.2	0.3
..ORDER	2.4	2.5	1.2	1.2
...FAMILY	2.4	2.9	1.2	1.2
....GENUS	2.4	3.1	1.2	2.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	290	1	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	35#	15	--	-	*	0	1000	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	560	1
....OOCYSTIS	--	-	95	5	--	-	460	1
....SELENASTRUM	--	-	57	3	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	270	13	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	*	0
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	78#	33	57	3	--	-	--	-
....CHLAMYDOMONAS	--	-	170	8	--	-	--	-
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	460	1
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	*	0
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	190	9	--	-	*	0
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	--	-	--	-	*	0
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	*	0	--	-
...DIATOMACEAE								
....DIATOMA	--	-	19	1	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	57	3	--	-	--	-
...NAVICULACEAE								
....NAVICULA	7	3	19	1	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	270	13	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	--	-	*	0
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	400	2	420	1
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADIDALES								
...CRYPTOMONODACEAE								
....CRYPTOMONAS	43#	18	590#	29	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....PHORMIDIUM	50#	21	--	-	--	-	--	-
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	230	11	12000#	47	24000#	35
....COCCOCHLORIS	--	-	--	-	*	0	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	2000	3
....APHANIZOMENON	--	-	--	-	13000#	50	19000#	28
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....GOMPHOSPHAERIA	--	-	--	-	--	-	21000#	30

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

HEART RIVER BASIN

06348882 CROWN BUTTE LAKE (DEEP) NEAR MANDAN, ND--Continued

PHYTOPLANKTON ANALYSES, MARCH 1978 TO SEPTEMBER 1978

DATE	MAR 10,78		MAY 10,78		JUN 22,78		AUG 2,78	
TIME	1230		1122		1057		1007	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	19	1	--	-	--	-
....TRACHELOMONAS	14	6	--	-	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	7	3	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349000 HEART RIVER NEAR MANDAN, ND

LOCATION.--Lat 46°50'02", long 100°58'27", in NW¼NE¼ sec.25, T.139 N., R.82 W., Morton County, Hydrologic Unit 10130203, on left bank near downstream wingwall of bridge on county highway, 3 mi (5 km) west of Mandan, and 4 mi (6 km) downstream from Sweetbriar Creek.

DRAINAGE AREA.--3,310 mi² (8,570 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1924, March 1928 to June 1933, August 1937 to current year. Published as "at Sunny" 1924, 1928-33.

REVISED RECORDS.--WSP 926: 1938. WSP 1209: Drainage area. WSP 1239: 1924, 1928-29, 1948.

GAGE.--Water-stage recorder. Datum of gage is 1,638.70 ft (499.476 m) National Geodetic Vertical Datum of 1929, and 1,623.03 ft (494.700 m) above Burlington Northern Railway datum. See WSP 1729 or 1917 for history of changes prior to June 30, 1958.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated by Lake Tschida (station 06346000) 105 mi (169 km) upstream since 1949. Some diversions above station.

AVERAGE DISCHARGE.--45 years (1928-32, 1937-78), 260 ft³/s (7.363 m³/s), 188,400 acre-ft/yr (232 hm³/yr); median of yearly mean discharges, 190 ft³/s (5.38 m³/s), 138,000 acre-ft/yr (170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,500 ft³/s (864 m³/s) Apr. 19, 1950, gage height, 23.64 ft (7.205 m); maximum gage height, 25.75 ft (7.849 m) Apr. 4, 1952, ice jam; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,900 ft³/s (479 m³/s) Mar. 28, gage height, 18.75 ft (5.715 m); maximum gage height, 24.85 ft (7.574 m) Mar. 25, backwater from ice; minimum daily, 8.0 ft³/s (0.227 m³/s) Feb. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	92	32	36	16	14	7240	760	495	365	126	114
2	148	66	32	34	14	15	6180	690	477	293	128	116
3	120	56	32	34	13	16	5470	645	365	297	112	118
4	115	54	32	33	14	16	5160	640	229	305	82	118
5	155	52	31	32	14	18	5310	655	229	337	70	110
6	218	49	29	30	14	20	5670	621	215	293	63	110
7	255	88	27	30	14	20	5150	554	206	254	75	104
8	291	101	27	30	14	24	4700	645	212	232	86	104
9	312	100	27	29	13	25	4360	665	215	197	84	102
10	352	100	28	28	13	200	4190	655	222	173	76	86
11	502	110	30	26	12	230	4080	635	226	155	74	97
12	660	120	32	25	12	150	3970	562	236	142	75	341
13	584	110	34	24	11	180	3870	775	240	120	76	662
14	496	90	36	23	11	330	3700	1160	229	106	78	720
15	454	70	38	22	10	300	3230	1330	220	100	90	365
16	419	50	38	22	10	220	2760	1340	243	84	92	232
17	377	40	40	21	10	230	3020	1180	254	71	89	185
18	339	35	40	21	9.0	220	2150	1240	236	65	87	148
19	318	30	40	19	8.0	230	1950	1110	329	75	82	110
20	276	26	42	19	8.0	350	1720	955	285	70	86	92
21	245	24	42	19	9.0	1000	1500	830	232	92	90	92
22	228	22	44	18	9.0	3300	1330	785	215	102	90	84
23	245	20	44	18	9.0	3500	1190	740	182	110	94	78
24	255	19	44	18	9.0	7700	1180	740	164	114	110	75
25	233	31	42	18	9.0	13600	1100	740	161	104	108	71
26	215	45	40	18	10	12700	1070	700	218	92	106	68
27	200	45	38	17	12	15000	950	640	173	96	102	66
28	185	40	38	16	13	16300	930	598	173	126	104	63
29	197	38	38	16	---	11700	860	558	346	135	108	62
30	190	34	37	16	---	8510	800	526	590	128	106	62
31	160	---	36	16	---	7030	---	518	---	124	108	---
TOTAL	8926	1757	1110	728	320.0	103948	94790	24192	7817	4957	2857	4755
MEAN	288	58.6	35.8	23.5	11.4	3353	3160	780	261	160	92.2	159
MAX	660	120	44	36	16	16300	7240	1340	590	365	128	720
MIN	115	19	27	16	8.0	14	800	518	161	65	63	62
AC-FT	17700	3490	2200	1440	635	206200	188000	47980	15510	9830	5670	9430

CAL YR 1977 TOTAL 61065.6 MEAN 167 MAX 2260 MIN 3.1 AC-FT 121100
WTR YR 1978 TOTAL 256157.0 MEAN 702 MAX 16300 MIN 8.0 AC-FT 508100

06349000 HEART RIVER NEAR MANDAN, ND--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-50, 1971 to 1976, and 1978.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1978.
WATER TEMPERATURES: January to September 1978.

REMARKS.--Sediment records from May 1948 to September 1971 available from U.S. Corps of Engineers, Omaha, Neb. Some chemical analyses furnished by North Dakota State Water Commission.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,750 micromhos Feb. 7, 1978; minimum daily, 390 micromhos Mar. 28, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 11, 1978; 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,750 micromhos Feb. 7; minimum daily, 390 micromhos Mar. 28.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 11; 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)
OCT										
28...	1345	185	1040	--	--	9.0	--	--	--	--
NOV										
23...	1430	20	1470	--	--	.0	--	--	--	--
DEC										
22...	1310	45	1610	--	--	.0	--	--	--	--
23...	1430	44	1600	--	-10.0	.0	--	8.6	62	--
JAN										
23...	1345	18	1670	7.7	--	.0	--	6.0	40	--
FEB										
24...	1430	9.2	1530	7.7	-6.5	.0	--	4.3	31	--
MAR										
21...	1700	1320	540	--	--	1.0	--	--	--	--
22...	1745	2750	440	--	--	.5	--	--	--	--
30...	1815	8190	470	--	--	4.5	--	--	--	--
APR										
06...	1550	5750	522	8.0	12.0	6.0	370	11.1	102	75
MAY										
01...	1500	747	965	8.3	--	14.0	30	10.3	105	28
31...	1225	518	1100	8.4	16.0	16.5	9.4	9.0	97	23
JUN										
12...	1620	240	1220	--	--	23.0	--	--	--	--
14...	1545	232	1170	--	--	28.0	--	--	--	--
30...	1230	627	1420	8.4	--	24.0	70	7.6	95	64
JUL										
25...	1230	110	1260	8.5	--	28.0	4.4	7.8	105	23
SEP										
01...	1010	107	1335	8.4	26.0	20.5	3.0	8.2	96	14
29...	1330	62	1430	8.5	11.5	13.0	5.0	9.8	--	47

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)
JAN									
23...	<1	48	480	29	95	59	230	50	4.6
FEB									
24...	27	56	430	2	89	50	220	52	4.6
APR									
06...	<30	K1230	150	29	33	17	59	44	2.1
MAY									
01...	K63	K20	280	46	56	33	120	48	3.1
31...	930	2100	320	56	64	38	150	50	3.7
JUN									
12...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
30...	K1500	E3100	340	0	69	40	230	59	5.5
JUL									
25...	K39	40	330	57	65	40	180	54	4.3
SEP									
01...	K90	104	340	76	67	41	170	52	4.0
29...	74	96	360	45	73	42	190	53	4.4

K - Results based on colony count outside the acceptable range (non-ideal colony count).

E - Estimated.

06349000 HEART RIVER NEAR MANDAN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, TOTAL (MG/L AS F) (00951)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
JAN									
23...	9.7	550	0	450	18	520	5.6	--	.4
FEB									
24...	7.9	520	0	430	17	420	13	--	.4
MAR									
21...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
APR									
06...	7.1	150	0	120	2.4	140	3.3	.9	.1
MAY									
01...	8.1	280	0	230	2.2	290	6.0	.7	.2
31...	8.2	--	--	260	--	340	7.4	.5	.2
JUN									
12...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
30...	9.5	--	--	350	--	440	6.4	.2	.4
JUL									
25...	9.4	--	--	270	--	420	10	.3	.3
SEP									
01...	8.7	--	--	260	--	430	9.2	.8	.3
29...	9.9	--	--	310	--	430	13	.3	.3

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
JAN									
23...	11	1190	1200	1.62	57.8	--	--	.46	.08
FEB									
24...	11	1090	1070	1.48	27.1	--	--	.50	.07
MAR									
21...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
APR									
06...	6.5	335	340	.46	5200	.53	.05	.58	.39
MAY									
01...	6.4	663	658	.90	1340	.38	.02	.40	.03
31...	4.2	753	768	1.02	1050	.07	.00	.07	.00
JUN									
12...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
30...	7.6	982	1010	1.34	1660	.06	.02	.08	.03
JUL									
25...	7.9	884	895	1.20	263	.01	.00	.01	.00
SEP									
01...	6.4	901	889	1.23	260	.04	.01	.05	.03
29...	7.8	946	952	1.29	158	.01	.00	.01	.02

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)
JAN										
23...	.29	.37	.01	.36	.83	3.7	.00	.00	--	--
FEB										
24...	.28	.35	.14	.21	.85	3.8	.02	.02	--	--
APR										
06...	1.9	2.3	1.5	.84	2.9	13	.04	.04	1200	7
MAY										
01...	1.1	1.1	.41	.69	1.5	6.6	.11	.02	680	2
31...	--	--	--	1.7	--	--	.06	.01	480	1
JUN										
30...	1.3	1.3	.86	.44	1.4	6.1	.19	.02	--	4
JUL										
25...	.82	.82	.23	.59	.85	3.7	.04	.00	300	--
SEP										
01...	.61	.64	.12	.52	.69	3.1	.03	.00	130	1
29...	.60	.62	.11	.51	.63	2.8	.04	.00	260	1

06349000 HEART RIVER NEAR MANDAN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
JAN										
23...	--	--	--	--	--	--	--	--	--	--
FEB										
24...	--	--	--	--	--	--	--	--	--	--
APR										
06...	3	4	300	200	100	0	130	2	1	1
MAY										
01...	--	--	100	--	--	10	230	1	--	--
31...	--	--	600	--	--	0	260	2	--	--
JUN										
30...	2	2	200	0	200	10	360	--	--	1
JUL										
25...	--	--	100	--	--	0	350	3	--	--
SEP										
01...	--	--	200	--	--	10	340	0	--	--
29...	--	1	100	0	100	0	400	1	0	1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
JAN									
23...	--	--	--	--	--	--	--	--	--
FEB									
24...	--	--	--	--	--	--	--	--	--
APR									
06...	30	30	0	10	9	1	43	41	2
MAY									
01...	0	--	--	1	--	--	4	--	--
31...	--	--	--	1	--	--	16	--	--
JUN									
30...	10	10	0	5	5	0	19	16	3
JUL									
25...	0	--	--	1	--	--	12	--	--
SEP									
01...	0	--	--	0	--	--	8	--	--
29...	0	0	0	2	0	2	10	9	1

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)
JAN									
23...	--	--	--	--	--	--	--	--	--
FEB									
24...	--	--	--	--	--	--	--	--	--
APR									
06...	34000	--	140	--	--	--	30	1000	990
MAY									
01...	1600	--	--	10	--	--	30	8	--
31...	1400	--	--	10	--	--	40	80	--
JUN									
30...	6600	6600	40	--	--	3	50	260	260
JUL									
25...	510	--	--	--	--	--	40	60	--
SEP									
01...	450	--	--	6	--	--	50	40	--
29...	530	520	10	5	5	0	50	50	50

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)
JAN									
23...	--	--	--	--	--	--	--	--	--
FEB									
24...	--	--	--	--	--	--	--	--	--
APR									
06...	10	.0	.0	.0	0	40	2	2	0
MAY									
01...	--	.0	--	--	4	0	0	--	--
31...	--	.2	--	--	6	8	1	--	--
JUN									
30...	0	.0	.0	.0	2	15	1	0	1
JUL									
25...	--	--	--	--	7	13	--	--	--
SEP									
01...	--	.0	--	--	8	5	1	--	--
29...	0	.0	.0	.0	8	6	0	0	0

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	VANADIUM, TOTAL (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
JAN									
23...	--	--	--	--	--	--	--	13	.2
FEB									
24...	--	--	--	--	--	--	--	6.4	.4
APR									
06...	0	0	0	--	130	120	10	9.9	13
MAY									
01...	0	--	--	--	20	--	--	6.6	1.0
31...	0	--	--	--	20	--	--	--	--
JUN									
30...	0	0	0	.2	50	40	10	9.9	--
JUL									
25...	1	--	--	--	20	--	--	6.3	.9
SEP									
01...	0	--	--	--	10	--	--	7.3	.8
29...	0	0	0	--	40	30	10	8.4	1.0

DATE	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
JAN								
23...	11	.53	--	--	--	--	--	--
FEB								
24...	6	.15	85	--	--	--	--	--
APR								
06...	2620	40700	47	--	--	--	--	--
MAY								
01...	136	274	42	--	--	--	--	--
31...	99	138	59	--	--	--	--	--
JUN								
19...	--	--	--	20	61	95	100	5
30...	298	504	78	--	--	--	--	--
JUL								
25...	24	7.1	89	--	--	--	--	--
SEP								
01...	29	8.4	56	--	--	--	--	--
29...	29	4.9	92	--	--	--	--	--

06349000 HEART RIVER NEAR MANDAN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				1400	1700	1300	495	990	1100	1190	---	1320
2				1450	1700	1600	510	1000	1110	1200	---	1320
3				1200	1700	1650	540	1000	1150	1200	---	---
4				1500	1720	1640	515	950	1200	1180	---	---
5				---	1720	1600	520	840	1290	1130	---	---
6				1400	1730	1610	520	980	1220	1150	---	---
7				1420	1750	1640	515	950	1300	1200	---	1210
8				1400	1680	1660	510	1000	1330	1190	1300	1290
9				1450	1700	1610	520	1100	1350	1180	1310	1280
10				1160	1690	1550	540	1090	1300	1180	1320	1300
11				1180	1700	1280	500	1100	1200	1250	1050	1300
12				1500	1650	1190	510	1200	1200	1230	1310	1110
13				1550	1600	1180	510	1050	1220	1260	1300	1110
14				1550	1600	1100	505	950	1200	1210	1320	1100
15				1500	1590	1100	540	1010	1180	1000	1320	590
16				---	1600	1120	575	1080	1200	1100	1320	710
17				---	1600	1100	635	1080	1200	1310	1310	800
18				1590	1600	1070	650	980	1240	1400	1320	940
19				1550	1600	900	800	940	1170	1290	1380	1100
20				1600	1600	860	780	945	1260	1300	1390	1200
21				1650	1610	560	800	985	1270	1260	1380	1260
22				1650	1580	444	790	1010	1280	1290	1310	1300
23				1650	1550	442	820	1000	1210	1320	1310	1310
24				1640	1520	440	860	1010	1200	1280	1300	1400
25				1610	1490	400	900	1020	1160	1280	1310	1370
26				1590	1500	400	900	1020	1180	1300	1300	1370
27				1600	1510	400	940	1030	1300	1300	1300	1380
28				1610	1490	390	890	1040	1270	1230	1310	1340
29				1630	---	450	920	1080	1400	1300	1330	1350
30				1670	---	480	980	1080	1190	1220	1280	1330
31				1650	---	490	---	1100	---	1290	1300	---
MEAN				1510	1620	1020	666	1020	1230	1240	1310	1200

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				.0	.0	.0	4.0	12.0	14.0	25.5	---	30.0
2				.0	.0	.0	2.0	16.0	18.0	30.0	---	28.0
3				.0	.0	.0	3.0	17.0	22.5	27.5	---	---
4				.0	.0	.0	5.0	15.0	25.5	25.5	---	---
5				---	.0	.0	7.0	17.0	25.5	30.0	---	---
6				.0	.0	.0	7.0	17.0	22.5	27.0	---	---
7				.0	.0	.0	5.0	11.5	20.5	28.0	---	28.0
8				.0	.0	.0	4.0	10.5	24.0	24.5	25.0	27.0
9				.0	.0	.0	7.0	15.0	27.0	25.0	26.0	27.0
10				.0	.0	.0	6.0	18.0	24.5	26.5	31.0	26.0
11				.0	.0	1.0	5.0	18.0	20.0	28.0	32.0	23.0
12				.0	.0	1.0	4.0	16.0	25.0	26.0	30.0	22.0
13				.0	.0	1.0	6.0	15.5	26.0	29.0	30.0	19.0
14				.0	.0	.0	5.0	18.0	29.0	30.0	28.0	19.0
15				.0	.0	.0	5.0	19.0	28.0	26.0	26.0	19.0
16				---	.0	.0	5.0	21.0	25.0	28.0	26.0	19.0
17				---	.0	.0	5.0	22.0	23.0	29.0	26.0	16.0
18				.0	.0	.0	5.0	20.0	26.0	31.0	22.0	14.0
19				.0	.0	.0	5.0	13.5	22.0	25.0	22.0	15.0
20				.0	.0	.0	7.0	16.0	22.0	25.0	27.0	15.0
21				.0	.0	1.0	7.0	23.0	24.0	27.0	24.0	17.0
22				.0	.0	1.0	8.0	25.0	25.5	28.0	20.0	19.0
23				.0	.0	1.0	8.0	24.0	30.0	30.0	25.0	20.0
24				.0	.0	1.0	9.0	21.0	31.0	31.0	27.0	20.0
25				.0	.0	1.0	11.0	24.0	30.0	30.0	26.0	22.0
26				.0	.0	1.0	13.0	24.0	27.0	27.0	26.0	20.0
27				.0	.0	1.0	15.0	24.0	30.0	27.0	26.0	19.0
28				.0	.0	3.0	13.0	23.5	25.0	26.0	24.0	20.0
29				.0	---	4.0	14.0	24.0	25.0	22.0	25.0	14.0
30				.0	---	4.0	15.0	19.5	25.5	25.0	24.0	18.0
31				.0	---	5.0	---	16.5	---	26.0	25.0	---
MEAN				.0	.0	1.0	7.0	18.5	25.0	27.5	26.0	20.5

06349000 HEART RIVER NEAR MANDAN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 6,78	MAY 1,78	MAY 31,78	JUN 30,78	JUL 25,78	SEP 1,78
TIME	1550	1500	1225	1230	1230	1010
TOTAL CELLS/ML	430	9700	10000	13000	72000	2000
DIVERSITY: DIVISION	0.9	1.0	1.1	0.9	1.2	1.2
.CLASS	0.9	1.0	1.2	0.9	1.2	1.2
..ORDER	0.9	1.7	2.0	1.3	1.9	1.9
...FAMILY	1.6	1.9	2.5	2.6	2.4	2.2
....GENUS	1.6	1.9	3.2	2.8	2.7	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	*	0	*	0
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	2300#	18	--	-	27	1
...HYDRODICTYACEAE												
....PEDIASTRUM	--	-	--	-	--	-	290	2	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	*	0	*	0
...OOCYSTACEAE												
....ANKISTRODESMUS	140#	33	--	-	3100#	30	2100#	16	3300	5	74	4
....CHODATELLA	--	-	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	1300	13	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	220	2	140	1	550	1	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-	550	1	--	-
....SELENASTRUM	--	-	76	1	170	2	110	1	960	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	*	0
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	1100	11	--	-	7000	10	--	-
....CRUCIGENIA	--	-	--	-	--	-	140	1	--	-	40	2
....SCENEDESMUS	--	-	300	3	340	3	4800#	37	1900	3	440#	21
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	300	3	1100	11	--	-	--	-	20	1
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	610	6	450	4	290	2	--	-	--	-
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	140	1	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	6300#	65	560	5	*	0	2500	3	*	0
....MELOSIRA	--	-	--	-	--	-	180	1	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	24	1
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	24	1
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	56	1	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	910	9	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	140#	33	--	-	56	1	180	1	*	0	*	0
....NEIDIUM	--	-	--	-	--	-	--	-	*	0	--	-
....PLEUROSIGMA	--	-	--	-	--	-	--	-	*	0	--	-
...NITZSCHIACEAE												
....NITZSCHIA	140#	33	530	5	340	3	900	7	4100	6	40	2
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	*	0	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	280	3	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

06349000 HEART RIVER NEAR MANDAN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 6,78		MAY 1,78		MAY 31,78		JUN 30,78		JUL 25,78		SEP 1,78	
TIME	1550		1500		1225		1230		1230		1010	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	230	11
....ANACYSTIS	--	-	530	5	1100	11	900	7	16000#	22	230	11
..HORMOGONALES												
...NOSTOCACEAE												
....APHANIZOMENON	--	-	--	-	--	-	--	-	2900	4	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	1600	2	50	2
....OSCILLATORIA	--	-	--	-	--	-	430	3	30000#	41	810#	40
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	110	1	--	-	--	-	--	-
....TRACHELOMONAS	--	-	150	2	56	1	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C
Aug. 24, 1978			Aug. 25, 1978			1000	7.9	21.0
1800	8.0	26.0	0100	7.4	22.5	1100	8.1	21.5
1900	7.8	25.5	0200	7.4	22.0	1200	8.2	22.5
2000	7.7	26.0	0300	7.5	22.0	1300	8.2	24.0
2100	7.6	25.0	0400	7.4	21.5	1400	8.2	25.0
2200	7.4	25.0	0500	7.4	21.5	1500	8.2	26.0
2300	7.4	24.0	0600	7.5	21.5	1600	8.2	26.5
2400	7.3	23.0	0700	7.5	21.0	1700	8.1	27.0
			0800	7.6	21.0	1800	8.0	27.0
			0900	7.8	21.0	1900	7.8	27.0

06349070 MISSOURI RIVER BELOW MANDAN, ND

LOCATION.--Lat 46°44'32", long 100°49'54", at midsection of west half sec.30, T.138 N., R.80 W., Morton County, Hydrologic Unit 10130102, on right bank 1 mi (2 km) south of Fort Lincoln State Park, 6 mi (10 km) southeast of Mandan, and at mile 1,309 (2,106 km).

DRAINAGE AREA.--189,800 mi² (491,600 km²), approximately.

PERIOD OF RECORD.--September 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft (487.680 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 29.71 ft (9.056 m) Mar. 17, 1972; minimum daily recorded, 17.40 ft (5.304 m) Apr. 1. 1968.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.36	---	27.79	---	26.42	25.12	20.74	22.66	25.92	26.07	25.20
2	---	19.39	---	27.28	---	26.63	24.69	20.88	22.79	25.93	26.02	25.64
3	---	19.40	---	27.35	27.41	26.24	24.13	21.25	22.87	25.88	25.91	25.39
4	---	19.35	---	27.66	27.08	---	23.98	21.45	22.62	25.98	25.98	25.97
5	---	19.40	---	27.71	26.65	27.00	23.82	21.36	22.71	25.99	26.02	26.04
6	---	19.32	---	27.72	26.54	25.95	23.76	21.51	22.74	25.79	25.99	25.97
7	---	19.30	---	27.75	26.67	26.30	23.67	21.01	22.94	25.88	25.96	25.52
8	---	19.31	---	---	26.93	26.43	23.59	20.03	22.86	25.94	26.03	25.53
9	---	19.40	---	---	27.23	26.63	23.89	20.60	23.04	25.93	26.07	25.57
10	---	19.50	---	---	27.29	26.35	23.56	21.33	23.42	25.93	26.09	25.69
11	---	19.61	---	---	27.16	25.97	23.57	21.52	23.71	25.91	26.10	25.46
12	---	19.44	---	---	27.06	25.74	23.49	21.52	23.96	25.67	26.12	25.61
13	---	19.38	28.07	---	26.56	25.68	22.96	21.51	23.88	25.95	26.14	25.04
14	---	19.33	28.15	---	26.59	25.86	22.48	21.02	24.19	25.93	26.14	24.62
15	---	19.49	27.78	---	26.78	25.69	22.16	20.71	24.71	25.93	26.15	24.46
16	---	---	27.43	---	27.12	25.74	22.03	21.02	24.87	25.95	26.15	24.48
17	---	---	27.32	---	27.08	25.71	21.29	20.89	24.86	25.98	26.14	24.41
18	---	---	27.12	---	---	25.79	21.30	20.82	24.76	25.96	26.13	24.09
19	---	---	26.75	---	---	25.95	21.59	20.79	24.87	26.01	26.12	24.18
20	---	---	26.71	---	27.05	25.64	21.76	20.59	25.08	26.01	26.14	24.11
21	19.42	---	26.35	---	26.86	25.79	21.59	20.71	25.07	26.00	26.17	24.23
22	19.53	---	26.33	---	27.21	25.85	21.66	20.88	25.29	26.00	26.13	24.38
23	19.48	---	27.33	---	27.08	25.72	21.55	20.81	25.70	26.01	26.12	24.56
24	19.58	---	27.80	---	26.85	25.54	21.24	21.28	25.84	26.02	26.13	24.56
25	19.52	---	27.67	---	26.82	24.37	21.38	22.25	25.89	26.02	26.21	24.28
26	19.52	---	26.86	---	26.51	24.08	21.46	22.56	25.77	26.00	26.27	24.64
27	19.50	---	26.91	---	26.38	24.06	21.45	22.97	25.75	25.99	26.28	25.64
28	19.39	---	27.54	---	26.38	24.55	21.44	23.02	25.79	26.00	26.26	25.91
29	19.38	---	27.97	---	---	24.61	21.62	22.64	25.78	26.00	25.82	26.20
30	19.30	---	28.12	---	---	24.32	21.51	22.53	25.89	26.01	25.42	26.24
31	19.45	---	27.98	---	---	24.94	---	22.72	---	26.02	25.43	---
TOTAL	---	---	---	---	---	---	677.74	662.92	730.31	804.58	807.67	753.62
MEAN	---	---	---	---	---	---	22.59	21.38	24.34	25.95	26.05	25.12
MAX	---	---	---	---	---	---	25.12	23.02	25.89	26.02	26.28	26.24
MIN	---	---	---	---	---	---	21.24	20.03	22.62	25.67	25.42	24.09

06349500 APPLE CREEK NEAR MENOKEN, ND

LOCATION.--Lat 46°47'40", long 100°39'25", in NW¼NE¼ sec.9, T.138 N., R.79 W., Burleigh County, Hydrologic Unit 10130103, on left bank 75 ft (23 m) downstream from bridge on county highway, 4 mi (6 km) upstream from Hay Creek, 6.3 mi (10.1 km) west of Menoken, and 6.4 mi (10.3 km) east of Bismarck.

DRAINAGE AREA.--1,680 mi² (4,350 km²), approximately, of which about 500 mi² (1,300 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to June 1905, October 1945 to current year. Published as "near Bismarck" 1905.

REVISED RECORDS.--WSP 1209: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,638.61 ft (499.448 m) National Geodetic Vertical Datum of 1929. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1953.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--33 years, 33.6 ft³/s (0.952 m³/s), 24,340 acre-ft/yr (30.0 hm³/yr); median of yearly mean discharges, 19 ft³/s (0.54 m³/s), 13,800 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,750 ft³/s (191 m³/s) Apr. 18, 1950, gage height, 17.07 ft (5.203 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,760 ft³/s (49.8 m³/s) Mar. 28, gage height, 15.56 ft (4.743 m), only peak above base of 200 ft³/s (5.66 m³/s); maximum gage height, 15.59 ft (4.752 m) Mar. 25, backwater from ice; minimum discharge, 0.06 ft³/s (0.002 m³/s) Sept. 3, gage height, 3.47 ft (1.058 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	5.7	2.2	1.2	1.2	.60	717	89	30	7.1	1.6	.14
2	18	5.7	2.1	1.2	1.1	.60	632	83	29	6.7	1.6	.12
3	17	5.7	2.0	1.2	1.0	.60	599	78	27	6.7	1.6	.06
4	16	5.4	2.1	1.2	.90	.60	549	75	25	6.7	1.7	.10
5	15	5.1	2.1	1.2	.80	.60	535	72	23	7.5	1.9	.10
6	15	5.1	2.0	1.2	.80	.60	545	65	23	7.1	1.7	.10
7	18	4.9	1.9	1.2	.80	.60	516	67	21	7.1	1.6	.10
8	17	4.7	1.8	1.2	.80	.60	501	70	20	6.7	1.4	.08
9	17	4.5	1.7	1.1	.80	.60	485	65	19	6.7	1.2	.08
10	16	4.3	1.6	1.1	.80	1.0	434	61	18	5.6	1.2	.08
11	15	4.1	1.6	1.1	.80	1.9	382	70	17	5.6	1.2	.20
12	15	3.9	1.6	1.0	.80	2.8	361	83	17	5.1	1.1	.31
13	14	3.7	1.6	1.0	.80	2.7	263	77	16	4.4	.57	.22
14	15	3.4	1.6	1.1	.80	2.3	286	70	14	4.1	.39	.18
15	14	3.4	1.6	1.1	.80	2.0	287	62	13	4.1	.51	.18
16	14	3.4	1.6	1.1	.70	1.7	262	55	15	3.7	.42	.19
17	13	3.4	1.6	1.1	.60	1.7	236	48	13	3.5	.33	.22
18	12	3.3	1.6	1.1	.60	2.0	224	45	12	3.2	.30	.22
19	12	3.4	1.5	1.0	.60	4.7	184	48	10	4.2	.30	.25
20	12	5.2	1.4	1.0	.60	15	150	50	8.6	4.3	.24	7.4
21	11	6.9	1.3	1.0	.60	60	149	50	8.0	4.0	.23	11
22	10	4.8	1.2	1.0	.60	100	152	50	7.5	3.5	.18	9.0
23	9.4	3.4	1.2	.97	.60	250	147	46	6.8	3.4	.18	5.9
24	8.9	2.9	1.2	1.1	.60	500	130	50	6.1	3.0	.21	4.7
25	8.3	2.9	1.2	1.3	.60	800	122	55	6.4	3.0	.18	3.8
26	8.0	2.9	1.2	1.3	.60	1100	125	50	6.7	2.9	.16	2.5
27	7.5	2.8	1.2	1.2	.60	1240	123	45	6.4	2.8	.16	1.5
28	7.9	2.5	1.2	1.2	.60	1600	118	40	5.8	2.6	.16	1.2
29	7.8	2.5	1.2	1.2	---	1270	110	36	6.1	2.2	.16	1.0
30	7.5	2.3	1.2	1.2	---	994	97	32	7.1	1.8	.14	1.0
31	6.7	---	1.2	1.2	---	829	---	32	---	1.8	.14	---
TOTAL	396.0	122.2	48.5	35.07	20.90	8786.20	9421	1819	437.5	141.1	22.76	51.93
MEAN	12.8	4.07	1.56	1.13	.75	283	314	58.7	14.6	4.55	.73	1.73
MAX	18	6.9	2.2	1.3	1.2	1600	717	89	30	7.5	1.9	11
MIN	6.7	2.3	1.2	.97	.60	.60	97	32	5.8	1.8	.14	.06
AC-FT	785	242	96	70	41	17430	18690	3610	868	280	45	103

CAL YR 1977 TOTAL 773.73 MEAN 2.12 MAX 19 MIN .00 AC-FT 1530
WTR YR 1978 TOTAL 21302.16 MEAN 58.4 MAX 1600 MIN .06 AC-FT 42250

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW (CFS) (00060)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 28...	1100	--	9.6	605	8.5	--	8.0	220	--	120	0	40
NOV 28...	1040	--	2.4	735	8.0	--	.0	130	--	150	0	32
DEC 28...	1400	--	1.1	980	7.6	--	.0	--	--	200	0	41
28...	1401	--	1.1	980	7.6	--	.0	--	--	190	0	40
JAN 30...	1230	--	1.4	910	7.5	--	.0	130	--	260	0	54
FEB 24...	1400	--	.58	1400	7.4	--	.0	--	--	300	0	65
MAR 20...	1545	--	9.0	1300	--	--	.5	--	--	--	--	--
21...	1140	--	100	750	--	--	.5	--	--	--	--	--
23...	1040	--	256	160	--	--	.5	--	--	--	--	--
25...	1100	--	799	195	--	--	.5	--	--	--	--	--
27...	1440	--	1240	170	--	--	1.5	--	--	--	--	--
29...	1535	--	1180	180	--	--	4.0	--	--	--	--	--
APR 03...	1640	--	546	245	--	--	3.5	--	--	--	--	--
05...	1530	535	--	350	7.8	--	7.5	70	--	58	0	14
06...	1645	--	593	350	--	--	7.5	--	--	--	--	--
MAY 08...	1340	--	72	610	8.1	--	12.5	120	--	140	0	31
30...	1210	--	28	880	8.0	--	21.0	60	--	220	0	45
JUL 14...	1200	--	4.0	1160	8.8	--	24.5	50	--	250	0	46
AUG 14...	1530	--	.34	1300	8.4	--	25.0	50	--	250	0	47
SEP 11...	1100	--	.07	1540	8.4	--	20.5	65	--	250	0	50
29...	1100	--	.94	1430	8.3	17.0	14.0	27	17	280	0	46
29...	1101	--	.94	1430	--	--	14.0	--	--	280	0	48

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
OCT 28...	4.9	94	61	3.7	6.3	247	3	208	1.3	100	17	.1
NOV 28...	17	120	62	4.3	6.2	324	0	266	5.2	110	19	.0
DEC 28...	24	160	62	4.9	7.4	420	0	340	17	160	27	.3
28...	22	160	64	5.0	6.4	427	0	350	17	150	27	.3
JAN 30...	30	220	64	6.0	7.1	580	0	476	29	190	36	.3
FEB 24...	53	250	64	6.3	7.4	711	0	583	45	200	40	.4
MAR 20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--	--	--
05...	5.6	48	61	2.7	6.4	122	0	100	3.1	51	5.1	.1
06...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	15	96	58	3.5	7.3	280	0	230	3.6	110	6.7	.1
30...	26	140	57	4.1	7.8	372	18	335	6.5	170	9.3	.2
JUL 14...	33	190	62	5.2	6.0	523	0	429	3.3	210	15	.3
AUG 14...	32	240	67	6.6	6.3	635	0	521	4.0	200	28	.5
SEP 11...	30	290	71	8.0	6.4	735	0	603	4.7	220	43	.5
29...	40	250	65	6.5	9.2	--	--	460	--	320	22	.4
29...	39	250	65	6.5	7.3	539	0	442	--	320	24	.3

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3) (71851)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2) (71856)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT												
28...	9.9	403	399	.55	10.4	.06	.27	.01	.03	.08	.07	.12
NOV												
28...	13	511	479	.69	3.31	.14	.62	.01	.03	.13	.15	.22
DEC												
28...	18	643	649	.87	1.91	--	--	--	--	--	.35	--
28...	12	661	630	.90	1.96	--	--	--	--	--	--	--
JAN												
30...	18	888	847	1.21	3.36	.31	1.4	.01	.03	.28	.32	.56
FEB												
24...	30	1010	980	1.37	1.58	--	--	--	--	--	--	--
MAR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
03...	--	--	--	--	--	--	--	--	--	--	--	--
05...	7.4	205	201	.26	296	.33	1.5	.02	.07	.39	.35	.15
06...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
08...	7.1	419	413	.57	81.5	.01	.04	.00	.00	.02	.01	.01
30...	8.3	629	610	.86	48.9	.01	.04	.01	.03	.01	.02	.04
JUL												
14...	6.0	801	766	1.09	8.80	.00	.00	.01	.03	.00	.01	.01
AUG												
14...	9.9	896	878	1.22	.82	.02	.09	.01	.03	.00	.03	.02
SEP												
11...	17	1060	1020	1.44	.20	.00	.00	.00	.00	.04	.00	.01
29...	8.5	999	975	1.36	2.54	.00	.00	.00	.00	.00	.00	.03
29...	6.4	993	961	1.35	2.52	--	--	--	--	--	--	--

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)
OCT									
28...	.15	--	1.5	--	1.6	7.0	.31	.22	.17
NOV									
28...	.28	--	1.9	--	2.0	9.0	.27	.19	.16
DEC									
28...	--	--	--	--	--	--	--	--	.24
28...	--	--	--	--	--	--	--	--	--
JAN									
30...	.72	--	1.8	--	2.1	9.2	.68	.47	.46
FEB									
24...	--	--	--	--	--	--	--	--	--
APR									
05...	.19	--	1.5	--	1.9	8.4	.29	.21	.17
MAY									
08...	.01	--	1.2	--	1.2	5.4	.28	.18	.14
30...	.05	--	1.3	--	1.3	5.8	.29	.22	.18
JUL									
14...	.01	--	1.4	--	1.4	6.2	.39	.29	.26
AUG									
14...	.03	--	1.9	--	1.9	8.4	.56	.46	.37
SEP									
11...	.01	--	1.7	--	1.7	7.7	.80	.67	.62
29...	.04	1.1	1.9	1.1	1.9	8.4	.33	.20	.17
29...	--	--	--	--	--	--	--	--	--

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT									
28...	.52	--	--	--	480	--	--	--	--
NOV									
28...	.49	--	--	--	480	--	--	--	--
DEC									
28...	.74	20	4	0	580	0	0	0	1
28...	--	--	--	--	720	--	--	--	--
JAN									
30...	1.4	--	--	--	810	--	--	--	--
FEB									
24...	--	--	--	--	860	--	--	--	--
APR									
05...	.52	70	3	0	360	1	0	0	1
MAY									
08...	.43	--	--	--	50	--	--	--	--
30...	.55	--	--	--	980	--	--	--	--
JUL									
14...	.80	0	12	100	290	0	0	6	2
AUG									
14...	1.1	--	--	--	490	--	--	--	--
SEP									
11...	1.9	--	--	--	750	--	--	--	--
29...	.52	0	7	100	990	1	0	4	2
29...	--	--	--	--	410	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)
OCT							
28...	690	--	--	100	--	--	--
NOV							
28...	410	--	--	160	--	--	--
DEC							
28...	230	2	70	560	.0	1	4
28...	220	--	--	780	--	--	--
JAN							
30...	240	--	--	1500	--	--	--
FEB							
24...	220	--	--	2600	--	--	--
APR							
05...	380	1	20	0	.0	1	0
MAY							
08...	830	--	--	20	--	--	--
30...	320	--	--	50	--	--	--
JUL							
14...	120	0	110	80	.0	4	7
AUG							
14...	120	--	--	60	--	--	--
SEP							
11...	180	--	--	180	--	--	--
29...	40	0	140	140	.0	2	4
29...	80	--	--	160	--	--	--

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT							
28...	--	--	--	--	--	--	--
NOV							
28...	--	--	--	--	--	--	--
DEC							
28...	0	500	.7	10	13	--	.00
28...	--	--	--	--	--	--	--
JAN							
30...	--	--	--	--	--	--	--
FEB							
24...	--	--	--	--	--	--	--
APR							
05...	0	130	--	0	27	2.5	.00
MAY							
08...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--
JUL							
14...	0	460	--	0	15	2.0	.00
AUG							
14...	--	--	--	--	--	--	--
SEP							
11...	--	--	--	--	--	--	--
29...	0	440	.0	10	18	2.3	.00
29...	--	--	--	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)
OCT							
28...	--	--	--	--	--	--	--
NOV							
28...	--	--	--	--	--	--	--
DEC							
28...	--	--	--	--	--	--	--
JAN							
30...	--	--	--	--	--	--	--
FEB							
24...	--	--	--	--	--	--	--
APR							
05...	--	--	--	--	--	--	--
MAY							
08...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--
JUN							
20...	36	79	97	97	23	99	100
JUL							
14...	--	--	--	--	--	--	--
AUG							
14...	--	--	--	--	--	--	--
SEP							
11...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 28,77	NOV 28,77	DEC 28,77	JAN 30,78	APR 5,78	MAY 8,78
TIME	1100	1040	1400	1230	1530	1340
TOTAL CELLS/ML	7200	2600	150	410	2400	10000
DIVERSITY: DIVISION	1.2	0.9	0.6	0.7	1.4	1.5
.CLASS	1.2	0.9	0.6	0.7	1.4	1.5
..ORDER	1.5	1.3	0.6	0.7	1.9	1.8
...FAMILY	2.4	2.2	1.2	1.3	2.6	2.1
....GENUS	2.8	2.3	1.2	1.3	2.7	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	*	0	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE												
....PEDIASTRUM	1700#	23	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	96	4	--	-	--	-	200	8	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	200	3	720#	28	29#	20	68#	17	160	7	2900#	28
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	*	0	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	330	3
....SELENASTRUM	140	2	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	48	2	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	620	9	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	2100#	29	1100#	44	98#	67	270#	67	--	-	910	9
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	*	0	96	4	--	-	--	-	100	4	780	8
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	--	-
...VOLVOCACEAE												
....EUDORINA	--	-	--	-	--	-	--	-	140	6	--	-
....PANDORINA	--	-	--	-	--	-	--	-	230	10	--	-
..CHLOROCOCCALES												
...OOCYSTACEAE												
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	1000	14	140	6	--	-	--	-	71	3	--	-
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	14	1	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	14	1	--	-
...CYMBELLACEAE												
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	14	1	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	20	13	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	250	3	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-	200	2
...NAVICULACEAE												
....CALONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	--	-	68#	17	29	1	--	-
...NITZSCHIACEAE												
....NITZSCHIA	360	5	96	4	*	0	--	-	110	5	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...MALLOMONADACEAE												
....MALLOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 28,77		NOV 28,77		DEC 28,77		JAN 30,78		APR 5,78		MAY 8,78	
TIME	1100		1040		1400		1230		1530		1340	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	4000#	39
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	1100#	47	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	780	11	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE												
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	130	5	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	29	1	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	190	7	--	-	--	-	--	-	1200	11
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	48	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAY 30,78	JUL 14,78	AUG 14,78	SEP 11,78	SEP 29,78
TIME	1210	1200	1530	1100	1100
TOTAL CELLS/ML	2400	18000	160000	19000	110000
DIVERSITY: DIVISION	1.9	1.3	0.7	1.0	0.8
.CLASS	1.9	1.3	0.7	1.0	0.8
..ORDER	2.4	1.7	0.9	1.3	1.0
...FAMILY	2.8	2.4	1.1	1.5	1.2
....GENUS	3.2	3.3	1.2	0.0	1.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	530	3	1700	1	310	2	1600	1
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	*	0	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	200	8	660	4	*	0	120	1	*	0
....DICTYOSPHAERIUM	--	-	--	-	15000	10	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	*	0	120	1	*	0
....OOCYSTIS	--	-	1900	11	*	0	*	0	--	-
....SELENASTRUM	57	2	*	0	--	-	190	1	1100	1
....TETRAEDRON	--	-	--	-	*	0	120	1	--	-
....TREUBARIA	14	1	130	1	*	0	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	110	5	2300	13	--	-	160	1	800	1
....SCENEDESMUS	170	7	5700#	32	2400	2	1100	5	2900	3
....TETRASTRUM	--	-	530	3	--	-	--	-	4000	4
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	*	0	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE	--	-	--	-	--	-	620	3	--	-
....CHLAMYDOMONAS	86	4	730	4	--	-	--	-	*	0
...PHACOTACEAE										
....PHACOTUS	14	1	--	-	--	-	--	-	--	-
...VOLVOCACEAE										
....EUDORINA	--	-	--	-	--	-	--	-	--	-
....PANDORINA	--	-	--	-	--	-	--	-	--	-
..CHLOROCOCCALES										
...OOCYSTACEAE										
....GLOEOACTINIUM	--	-	--	-	--	-	--	-	600	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	210	9	460	3	2200	1	350	2	990	1
....MELOSIRA	--	-	600	3	--	-	--	-	700	1
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	*	0	--	-
...CYMBELLACEAE										
....EPITHEMIA	--	-	--	-	--	-	--	-	*	0
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	14	1	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	29	1	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....CALONEIS	14	1	--	-	--	-	--	-	--	-
....NAVICULA	71	3	130	1	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	100	4	*	0	--	-	120	1	2100	2
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	--	-	*	0
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...MALLOMONADACEAE										
....MALLOMONAS	--	-	--	-	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	130	1	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED .

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAY 30,78		JUL 14,78		AUG 14,78		SEP 11,78		SEP 29,78	
TIME	1210		1200		1530		1100		1100	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	1700	1	--	-	--	-
....ANACYSTIS	940#	39	2200	12	2500	2	470	2	3500	3
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	870	1	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	660	4	--	-	--	-	*	0
....OSCILLATORIA	57	2	--	-	130000#	81	15000#	76	86000#	81
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	71	3	200	1	--	-	*	0	*	0
....PHACUS	14	1	200	1	--	-	*	0	--	-
....TRACHELOMONAS	230	9	530	3	*	0	660	3	*	0
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	*	0	--	-	--	-
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349500 APPLE CREEK NEAR MENOKEN, ND--Continued

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Dec. 28, 1977		
1500	5.1	0.0
1600	5.2	.0
1700	5.2	.0
1800	5.1	.0
1900	5.1	.0
2000	5.1	.0
2100	5.1	.0
2200	5.1	.0
2300	5.1	.0
2400	5.1	.0
Dec. 29, 1977		
0100	5.0	.0
0200	5.0	.0
0300	5.0	.0
0400	5.0	.0
0500	5.0	.0
0600	5.1	.0
0700	5.1	.0
0800	5.0	.0
0900	5.0	.0
1000	5.0	.0
1100	5.0	.0
1200	5.0	.0
1300	5.0	.0
1400	5.0	.0
1500	5.1	.0
Apr. 5, 1978		
1300	10.7	7.5
1400	10.7	7.5
1500	10.7	7.5
1600	10.6	7.5
1700	10.6	7.5
1800	10.6	7.5
1900	10.5	7.5
2000	10.5	7.5
2100	10.4	7.5
2200	10.3	7.5
2300	10.3	7.5
2400	10.3	7.5
Apr. 6, 1978		
0100	10.3	7.5
0200	10.3	7.5
0300	10.3	7.5
0400	10.2	7.5
0500	10.1	7.5
0600	10.1	7.5
0700	10.0	7.5
0800	10.0	7.5
0900	10.1	7.5
1000	10.0	7.5
1100	10.0	7.5
1200	10.1	7.5
1300	10.1	7.5
July 13, 1978		
2000	7.5	25.0
2100	7.5	--
2200	7.5	--
2300	7.2	--
2400	6.6	--
July 14, 1978		
0100	6.0	--
0200	5.7	--
0300	5.3	22.5
0400	5.1	--
0500	5.0	--
0600	4.6	--
0700	4.4	--
0800	4.4	--
0900	4.4	--
1000	5.4	--
1100	5.8	--
1200	6.3	--
1300	6.9	--
1400	7.0	--
1500	7.1	25.5
1600	7.4	--
1700	7.7	--
1800	8.2	--
1900	8.8	--
2000	9.4	--

RESULTS OF ALGAL GROWTH POTENTIAL (AGP) DETERMINATIONS

DATE	AGP mg/L	SPIKE
Dec. 28, 1977	31.5	None
	25.4	0.05 mg/L P
	59.0	1.0 mg/L N
	58.5	1.0 mg/L N + 0.05 mg/L P
Apr. 4, 1978	23.3	None
	21.8	0.05 mg/L P
	57.5	1.0 mg/L N
	59.0	1.0 mg/L N + 0.05 mg/L P
Jul. 14, 1978	3.2	None
	3.4	0.05 mg/L P
	41.0	1.0 mg/L N
	41.2	1.0 mg/L N + 0.05 mg/L P
Sept. 29, 1978	2.1	None
	4.0	0.05 mg/L P
	37.5	1.0 mg/L N
	38.7	1.0 mg/L N + 0.05 mg/L P

06349700 MISSOURI RIVER NEAR SCHMIDT, ND

LOCATION.--Lat 46°39'22", long 100°44'18", in SW¼NE¼ sec.26, T.137 N., R.80 W., Morton County, Hydrologic Unit 10130102, on right bank 2 mi (3 km) southeast of abandoned townsite of Schmidt, 13 mi (21 km) southeast of Mandan, and at mile 1,298 (2,088 km).

DRAINAGE AREA.--191,700 mi² (496,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft (487.680 km) National Geodetic Vertical Datum of 1929.

REMARKS.--Stage regulated by Lake Sakakawea (station 06338000).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily gage height recorded, 23.56 ft (7.181 m) Dec. 9, 1976; minimum daily recorded, 7.92 ft (2.414 m) May 30, 1967.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.67	11.80	16.24	---	21.68	19.88	18.11	15.52	17.00	19.31	19.36	18.32
2	12.59	11.82	15.82	---	21.41	20.12	17.84	15.60	17.21	19.36	19.30	18.48
3	12.61	11.84	15.77	---	21.63	19.88	17.26	16.04	17.24	19.40	19.22	18.42
4	12.46	11.78	15.77	---	21.34	20.05	17.02	16.12	17.10	19.46	19.26	18.78
5	12.52	11.82	15.89	20.84	21.07	20.59	16.95	15.84	---	19.43	19.29	18.88
6	12.59	11.74	17.90	20.90	20.75	19.63	16.77	15.94	---	19.31	19.27	18.89
7	12.70	11.67	18.69	20.94	20.70	19.63	16.68	15.85	---	19.33	19.26	18.48
8	12.85	11.67	18.83	21.07	20.94	19.80	16.62	14.75	---	19.50	19.22	18.41
9	12.75	11.80	18.84	20.65	21.24	19.97	16.84	15.34	---	19.38	19.27	18.40
10	12.48	11.94	18.96	20.82	21.35	19.76	16.69	16.06	---	19.47	19.30	18.46
11	12.18	12.06	19.01	21.10	21.21	19.30	16.65	16.07	---	19.68	19.31	18.37
12	12.05	11.98	19.77	21.15	21.11	18.91	16.65	16.08	---	19.51	19.25	18.44
13	12.04	11.82	20.26	21.24	20.66	18.72	16.31	16.26	---	19.45	19.27	18.03
14	12.01	11.75	20.61	21.44	20.50	18.85	15.78	16.39	---	19.47	19.26	17.56
15	12.04	11.81	20.61	21.45	20.68	18.73	15.75	16.71	---	19.40	19.21	17.35
16	12.06	11.82	---	21.21	20.96	18.70	15.79	16.95	---	19.41	19.24	17.29
17	11.92	11.73	---	21.09	21.02	18.67	15.47	16.42	---	19.48	19.19	17.24
18	11.84	11.83	---	20.97	20.90	18.71	14.85	16.23	---	19.36	19.14	16.94
19	12.00	12.38	---	21.15	20.88	18.81	15.16	16.05	---	19.39	19.16	16.97
20	12.00	13.13	---	21.24	20.87	18.78	15.48	15.91	---	19.41	19.17	16.98
21	11.84	13.41	---	21.53	20.67	19.00	15.68	16.34	---	19.41	19.13	17.06
22	11.93	13.72	---	21.41	20.70	20.30	15.76	16.35	---	19.42	19.11	17.17
23	11.88	15.24	---	21.08	20.85	21.52	15.44	16.22	---	19.50	19.04	17.29
24	12.04	16.31	---	20.71	20.55	21.54	15.28	16.44	---	19.53	19.06	17.30
25	12.02	17.42	---	20.61	20.46	20.18	15.57	16.81	---	19.47	19.12	17.03
26	11.95	19.79	---	20.20	20.28	20.26	15.72	16.84	---	19.41	19.19	17.20
27	11.95	20.87	---	20.46	19.95	19.06	15.97	17.03	19.19	19.41	19.14	18.07
28	11.82	20.34	---	21.38	19.88	18.18	15.88	17.16	19.22	19.48	19.13	18.48
29	11.77	18.59	---	21.59	---	17.83	15.79	17.08	19.17	19.32	18.88	18.72
30	11.65	17.11	---	21.61	---	17.38	15.86	17.17	19.28	19.37	18.46	18.82
31	11.85	---	---	21.42	---	17.82	---	17.41	---	19.34	18.48	---
TOTAL	377.06	410.99	---	---	584.24	600.56	485.62	504.98	---	602.17	593.69	537.83
MEAN	12.16	13.70	---	---	20.87	19.37	16.19	16.29	---	19.42	19.15	17.93
MAX	12.85	20.87	---	---	21.68	21.54	18.11	17.41	---	19.68	19.36	18.89
MIN	11.65	11.67	---	---	19.88	17.38	14.85	14.75	---	19.31	18.46	16.94

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW (CFS) (00060)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)
OCT												
12...	1030	145	650	8.6	--	7.5	10.3	91	10	1400	K100	--
26...	1115	139	650	8.3	--	10.5	9.8	93	5	K750	K33	230
NOV												
08...	1045	125	670	8.5	--	9.0	10.4	95	10	--	75	--
DEC												
12...	1130	220	670	8.3	--	.0	12.3	89	15	636	K35	240
21...	1145	190	660	8.3	--	.0	13.1	95	9	550	K15	230
JAN												
05...	1120	260	655	8.5	--	.0	12.9	94	17	375	K17	--
12...	1125	272	660	8.2	--	.0	12.0	87	39	K325	K15	240
24...	1400	196	680	8.3	--	.0	12.5	91	18	1280	25	--
FEB												
02...	1015	320	670	8.3	--	.0	12.6	92	11	1050	K16	230
14...	1445	295	680	8.3	--	.0	12.9	93	20	700	28	--
MAR												
01...	1040	280	710	8.6	-6.0	.0	12.9	98	0	1650	67	240
14...	1110	242	700	8.4	--	.0	13.3	97	10	950	83	240
31...	1615	377	550	8.1	--	5.0	10.7	89	59	380	K25	--
APR												
14...	1515	282	630	8.0	--	4.0	12.0	96	19	K38	K8	230
25...	1730	186	690	8.3	--	6.5	11.7	100	14	K90	K2	--
MAY												
09...	1030	116	680	8.5	--	7.0	11.0	95	13	1600	K10	250
22...	1715	149	720	8.4	--	14.0	10.0	102	19	670	185	--
JUN												
07...	1130	243	690	8.5	--	13.5	9.6	97	9	K80	K35	240
19...	1330	351	695	8.3	--	15.0	9.4	98	30	>60000	K53	--
JUL												
06...	1200	429	680	8.3	--	15.5	9.2	97	34	K370	K35	230
20...	1245	428	675	8.3	--	15.0	9.1	95	14	K67	K8	--
AUG												
09...	1515	425	685	8.2	--	16.0	8.7	93	30	3470	K1	240
22...	1045	433	685	8.3	--	16.5	8.6	93	10	5800	K25	--
SEP												
13...	1230	383	680	8.3	--	16.0	8.8	94	11	K720	K150	220
26...	1115	311	695	8.4	--	16.0	9.0	--	17	K300	K45	--

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
26...	66	56	22	61	36	1.7	4.2	200	0	160	1.6
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
12...	67	58	23	64	36	1.8	4.6	210	0	170	1.7
21...	68	55	23	60	36	1.7	4.2	200	0	160	1.6
JAN											
05...	--	--	--	--	--	--	--	--	--	--	--
12...	85	57	24	62	35	1.7	4.2	190	0	160	1.9
24...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	66	55	23	60	35	1.7	4.3	200	1	170	1.6
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
01...	80	58	24	64	36	1.8	3.9	200	0	160	.8
14...	73	57	23	60	35	1.7	4.3	200	0	160	1.3
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
14...	74	54	23	63	37	1.8	4.8	190	0	160	3.0
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
09...	66	58	25	70	38	1.9	4.6	220	1	180	1.1
22...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	68	56	24	68	38	1.9	4.2	200	4	170	1.1
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
06...	--	56	23	64	37	1.8	4.3	--	0	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
09...	94	57	24	66	37	1.9	4.3	180	0	150	1.0
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
13...	76	55	21	66	39	1.9	4.3	180	0	150	1.4
26...	--	--	--	--	--	--	--	--	--	--	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT											
12...	--	--	--	--	432	--	.59	169	29	.06	.00
26...	180	9.1	.6	7.7	439	439	.60	165	21	.06	.00
NOV											
08...	--	--	--	--	437	--	.59	147	16	.07	.00
DEC											
12...	200	12	.6	8.9	466	475	.63	277	13	.05	.11
21...	170	9.8	.6	8.2	435	429	.59	223	14	.09	.00
JAN											
05...	--	--	--	--	449	--	.61	315	14	.12	.01
12...	190	9.8	.6	8.5	455	450	.62	334	9	.12	.09
24...	--	--	--	--	451	--	.61	239	26	.06	.01
FEB											
02...	180	9.9	.6	7.8	443	440	.60	383	16	.11	.03
14...	--	--	--	--	456	--	.62	363	17	.06	.01
MAR											
01...	180	13	.6	8.1	449	450	.61	339	7	.07	.02
14...	180	18	.7	7.1	448	441	.61	293	16	.09	.02
31...	--	--	--	--	347	--	.47	353	706	.30	.20
APR											
14...	190	9.0	.5	7.6	430	446	.58	327	97	.19	.08
25...	--	--	--	--	481	--	.65	242	26	.16	.03
MAY											
09...	200	10	.6	7.5	478	485	.65	150	21	.11	.05
22...	--	--	--	--	478	--	.65	192	23	.07	.03
JUN											
07...	190	14	.6	7.6	452	467	.61	297	39	.03	.01
19...	--	--	--	--	439	--	.60	416	31	.13	.01
JUL											
06...	200	18	.6	7.4	445	--	.61	515	14	.15	.01
20...	--	--	--	--	438	--	.60	506	44	.15	.00
AUG											
09...	200	9.9	.5	6.6	458	457	.62	526	23	.21	.03
22...	--	--	--	--	456	--	.62	533	55	.22	.02
SEP											
13...	200	12	.5	7.7	457	455	.62	473	30	.26	.01
26...	--	--	--	--	463	--	.63	389	21	.21	.00

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, SUS- PENDED RECOV. (UG/L AS AL) (01107)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)
OCT												
12...	.20	.20	.26	1.2	.10	--	--	--	--	--	--	--
26...	.17	.17	.23	1.0	.04	--	0	0	0	2	0	2
NOV												
08...	.16	.16	.23	1.0	.02	--	--	--	--	--	--	--
DEC												
12...	.08	.19	.24	1.1	.03	--	--	--	--	--	--	--
21...	.12	.12	.21	.93	.02	--	--	--	--	--	--	--
JAN												
05...	.40	.41	.53	2.3	.01	--	--	--	--	--	--	--
12...	.39	.48	.60	2.7	.02	--	--	--	--	--	--	--
24...	.16	.17	.23	1.0	.02	--	--	--	--	--	--	--
FEB												
02...	.15	.18	.29	1.3	.03	--	--	--	--	--	--	--
14...	.08	.09	.15	.66	.02	--	--	--	--	--	--	--
MAR												
01...	.00	.01	.08	.35	.03	--	--	--	--	--	--	--
14...	.15	.17	.26	1.2	.06	--	--	--	--	--	--	--
31...	2.1	2.3	2.6	12	.70	--	--	--	--	--	--	--
APR												
14...	.41	.49	.68	3.0	.11	--	2400	2400	30	5	3	2
25...	.40	.43	.59	2.6	.03	--	--	--	--	--	--	--
MAY												
09...	.56	.61	.72	3.2	.04	--	--	--	--	--	--	--
22...	.45	.48	.55	2.4	.03	--	--	--	--	--	--	--
JUN												
07...	.28	.29	.32	1.4	.04	--	--	--	--	--	--	--
19...	.42	.43	.56	2.5	.02	--	--	--	--	--	--	--
JUL												
06...	.18	.19	.34	1.5	.04	--	--	--	--	--	--	--
20...	2.2	2.2	2.4	10	.04	--	--	--	--	--	--	--
AUG												
09...	.23	.26	.47	2.1	.01	.03	--	--	--	--	--	--
22...	.77	.79	1.0	4.5	.05	--	--	--	--	--	--	--
SEP												
13...	.50	.51	.77	3.4	.08	--	--	--	--	--	--	--
26...	.38	.38	.59	2.6	.05	--	--	--	--	--	--	--

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, SUS-PENDED RECOV. (UG/L AS BE) (01011)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
26...	0	0	20	130	0	10	10	0	<10	<6	4
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
12...	--	--	--	130	--	--	--	--	--	--	--
21...	--	--	--	120	--	--	--	--	--	--	--
JAN											
05...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	120	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	--	--	--	120	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
01...	--	--	--	130	--	--	--	--	--	--	--
14...	--	--	--	130	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
14...	0	0	10	130	0	0	0	0	--	--	0
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
09...	--	--	--	140	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	130	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
06...	--	--	--	130	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
09...	--	--	--	120	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
13...	--	--	--	90	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM SUS-PENDED RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)
OCT										
12...	--	--	--	--	--	--	--	--	--	--
26...	750	20	2	30	0	40	40	40	4	.0
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
FEB										
02...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
14...	4000	50	3	40	0	50	100	90	10	.0
25...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JUL										
06...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
AUG										
09...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	MOLYB-DENUM, SUS-PENDED RECOV. (UG/L AS MO)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
OCT									
12...	--	--	--	--	--	--	--	--	--
26...	.0	.0	6	4	2	<50	<50	0	2
NOV									
08...	--	--	--	--	--	--	--	--	--
DEC									
12...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
JAN									
05...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
FEB									
02...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
MAR									
01...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
14...	.0	.2	3	1	2	--	--	1	0
25...	--	--	--	--	--	--	--	--	--
MAY									
09...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
JUN									
07...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
JUL									
06...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
AUG									
09...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT									
12...	--	--	--	--	--	--	3.3	--	--
26...	1	1	1.1	10	4	6	--	3.6	.7
NOV									
08...	--	--	--	--	--	--	2.8	--	--
DEC									
12...	--	--	--	--	--	--	--	3.1	--
21...	--	--	--	--	--	--	--	2.7	.3
JAN									
05...	--	--	--	--	--	--	2.9	--	--
12...	--	--	--	--	--	--	--	2.9	.3
24...	--	--	--	--	--	--	2.7	--	--
FEB									
02...	--	--	--	--	--	--	--	3.0	.1
14...	--	--	--	--	--	--	5.4	--	--
MAR									
01...	--	--	--	--	--	--	--	3.2	.4
14...	--	--	--	--	--	--	--	4.1	.3
31...	--	--	--	--	--	--	58	--	--
APR									
14...	0	1	.0	30	20	10	--	4.4	1.2
25...	--	--	--	--	--	--	3.6	--	--
MAY									
09...	--	--	--	--	--	--	--	2.9	.5
22...	--	--	--	--	--	--	3.8	--	--
JUN									
07...	--	--	--	--	--	--	--	2.5	.6
19...	--	--	--	--	--	--	3.1	--	--
JUL									
06...	--	--	--	--	--	--	--	3.5	.3
20...	--	--	--	--	--	--	3.8	--	--
AUG									
09...	--	--	--	--	--	--	--	3.1	.3
22...	--	--	--	--	--	--	4.5	--	--
SEP									
13...	--	--	--	--	--	--	--	3.5	.6
26...	--	--	--	--	--	--	4.0	--	--

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 26,77	DEC 12,77	DEC 21,77	JAN 12,78	FEB 2,78
TIME	1115	1130	1145	1125	1015
TOTAL CELLS/ML	1000	280	510	270	1500
DIVERSITY: DIVISION	1.9	0.3	0.0	0.0	0.0
.CLASS	1.9	0.3	0.0	0.0	0.0
..ORDER	2.2	0.4	0.0	0.0	0.1
...FAMILY	2.8	0.8	0.3	0.1	0.1
....GENUS	2.9	0.8	0.3	0.2	0.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	57	6	12	4	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	7	1	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	43	4	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	14	1	--	-	--	-	--	-	--	-
...VOLVOCACEAE										
....EUDORINA	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	71	7	6	2	--	-	--	-	17	1
....MELOSIRA	--	-	--	-	--	-	--	-	--	-
....SKELETONEMA	14	1	--	-	--	-	--	-	--	-
....STEPHANODISCUS	7	1	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	7	1	6	2	--	-	--	-	--	-
....COCCONEIS	7	1	6	2	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	--	-	*	0
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	250#	87	480#	96	260#	97	1500#	98
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	14	1	--	-	--	-	4	1	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	7	1	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....CALONEIS	--	-	--	-	--	-	--	-	--	-
....NAVICULA	14	1	6	2	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	76	8	--	-	23	4	4	1	--	-
...SURIRELLACEAE										
....CYMATOPLEURA	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...MALLOMONADACEAE										
....MALLOMONAS	7	1	--	-	--	-	--	-	--	-
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....RHODOMONAS	160#	17	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	99	10	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 26,77		DEC 12,77		DEC 21,77		JAN 12,78		FEB 2,78	
TIME	1115		1130		1145		1125		1015	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCAEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-
....APHANIZOMENON	390#	38	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MISSOURI RIVER MAIN STEM

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	MAR 1,78	MAR 14,78	APR 14,78	MAY 9,78
TIME	1040	1110	1515	1030
TOTAL CELLS/ML	770	160	1100	4600
DIVERSITY: DIVISION	0.4	0.0	1.6	1.1
.CLASS	0.4	0.0	1.6	1.3
..ORDER	0.5	0.0	2.3	1.5
...FAMILY	0.5	0.2	2.9	1.7
....GENUS	0.5	0.6	2.9	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	43	4	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	57	5	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	100	9	200	4
....CHODATELLA	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	29	1
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	110	3
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	57	1
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	14	1	*	0
...VOLVOCACEAE								
....EUDORINA	--	-	--	-	340#	31	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	2	--	-	240#	22	2900#	64
....MELOSIRA	--	-	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	14	1	29	1
...FRAGILARIACEAE								
....ASTERIONELLA	710#	91	150#	89	--	-	--	-
....FRAGILARIA	--	-	--	-	29	3	--	-
....SYNEDRA	--	-	12	7	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	6	4	--	-	29	1
...NAVICULACEAE								
....CALONEIS	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	29	3	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	--	-	14	1	140	3
...SURIRELLACEAE								
....CYMATOPLEURA	--	-	--	-	29	3	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	--	-	--	-
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	--	-	140	3
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....RHODOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ...

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	MAR 1,78		MAR 14,78		APR 14,78		MAY 9,78	
TIME	1040		1110		1515		1030	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	53	7	--	-	170#	15	920#	20
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	29	3	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	JUN 7,78	JUL 6,78	AUG 9,78	SEP 13,78
TIME	1130	1200	1515	1230
TOTAL CELLS/ML	1400	930	95	520
DIVERSITY: DIVISION	1.6	1.8	1.5	1.5
.CLASS	1.7	1.8	1.5	1.5
..ORDER	2.1	2.2	1.7	1.5
...FAMILY	3.0	2.7	2.0	2.0
....GENUS	3.3	2.9	2.4	2.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	100	7	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	110	8	120	13	1	1	--	-
....CHODATELLA	--	-	--	-	--	-	120#	22
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	57	4	--	-	--	-	14	3
....SELENASTRUM	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	110	8	93	10	--	-	--	-
....CRUCIGENIA	--	-	--	-	5	6	--	-
....SCENEDESMUS	110	8	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	14	1	--	-	--	-	--	-
....CHLAMYDOMONAS	14	1	--	-	--	-	--	-
...VOLVOCACEAE								
....EUDORINA	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	110	8	93	10	--	-	--	-
....MELOSIRA	--	-	120	13	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	4	4	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	1	1	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	43	8
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	14	3
...DIATOMACEAE								
....DIATOMA	29	2	23	2	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	230#	16	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	14	3
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	23	2	4	4	--	-
...NAVICULACEAE								
....CALONEIS	--	-	--	-	--	-	14	3
....NAVICULA	--	-	--	-	--	-	29	6
...NITZSCHIACEAE								
....NITZSCHIA	130	9	160#	17	38#	39	14	3
...SURIRELLACEAE								
....CYMATOPLEURA	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	--	-	--	-	--	-
...OCHROMONADACEAE								
....OCHROMONAS	43	3	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....RHODOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	1	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349700 MISSOURI RIVER NEAR SCHMIDT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	JUN 7,78		JUL 6,78		AUG 9,78		SEP 13,78	
TIME	1130		1200		1515		1230	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	250#	27	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	28#	30	--	-
....ANABAENOPSIS	--	-	--	-	11	11	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	260#	50
....OSCILLATORIA	360#	25	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	23	2	1	1	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	23	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06349930 COAL BANK CREEK NEAR HAVELOCK, ND

LOCATION.--Lat 46°27'50", long 102°44'20", in NW¼SW¼ sec.34, T.135 N., R.96 W., Hettinger County, Hydrologic Unit 10130204, one mile south of Havelock, and at county highway bridge.

DRAINAGE AREA.--70.0 mi² (181.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,505 ft (764 m), from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,400 ft³/s (39.5 m³/s) May 9, 1975, gage height, 10.15 ft (3.094 m), no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 700 ft³/s (2.0 m³/s) Mar. 26, gage height, 11.3 ft (3.44 m); minimum, 0.01 ft³/s (<0.001 m³/s) Aug. 18, 19, gage height, 2.68 ft (0.817 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.10	.09	.15	.10	.15	97	2.8	3.6	.97	.10	.10
2	.15	.09	.10	.15	.10	.15	39	2.7	6.3	.80	.09	.10
3	.13	.07	.10	.15	.10	.15	28	2.6	4.6	.63	.07	.10
4	.11	.07	.10	.15	.10	.15	43	2.8	3.5	.55	.08	.10
5	.09	.07	.10	.15	.09	.15	42	3.2	2.8	.44	.09	.11
6	.08	.07	.05	.15	.10	.15	25	3.0	2.2	.37	.09	.11
7	.12	.08	.05	.15	.10	.15	15	3.8	1.7	.40	.08	.10
8	.12	.10	.05	.15	.10	.15	9.0	9.8	1.5	.40	.08	.10
9	.16	.09	.02	.15	.10	.20	7.4	13	1.4	.32	.08	.10
10	.11	.09	.02	.15	.10	.20	7.0	7.6	1.2	.26	.07	.10
11	.08	.10	.02	.15	.11	.25	5.8	5.8	1.0	.26	.05	.23
12	.07	.10	.02	.15	.10	.25	5.1	9.8	.97	.30	.05	.22
13	.07	.10	.05	.15	.10	.25	4.9	10	1.0	.26	.04	.13
14	.07	.10	.15	.15	.10	.25	4.5	6.7	1.0	.24	.03	.11
15	.09	.10	.20	.15	.10	.25	4.0	5.0	1.1	.22	.04	.11
16	.10	.11	.20	.15	.10	.25	3.9	4.0	1.0	.21	.05	.11
17	.10	.12	.20	.15	.10	.25	4.0	3.3	.87	.20	.04	.11
18	.10	.12	.15	.15	.10	.40	4.0	2.8	.87	.17	.01	.13
19	.10	.12	.15	.15	.10	.60	4.0	2.7	1.3	.53	.01	.12
20	.11	.13	.15	.15	.10	1.0	4.0	4.0	1.3	.37	.02	.11
21	.11	.10	.15	.15	.10	5.0	4.0	4.3	1.2	.28	.02	.11
22	.11	.10	.15	.15	.15	10	4.0	3.9	1.3	.26	.03	.10
23	.11	.10	.15	.15	.15	50	5.5	3.2	1.6	.25	.03	.10
24	.10	.05	.15	.15	.20	200	6.0	2.7	1.3	.24	.04	.09
25	.10	.05	.15	.15	.25	320	5.5	2.3	2.7	.21	.06	.09
26	.11	.05	.15	.10	.25	820	4.4	1.9	64	.17	.06	.08
27	.10	.05	.15	.10	.20	780	3.9	1.6	11	.16	.08	.08
28	.10	.07	.15	.10	.20	580	3.6	1.5	4.1	.15	.10	.08
29	.10	.08	.15	.10	---	280	3.3	1.3	2.2	.11	.10	.07
30	.09	.09	.15	.10	---	374	3.1	1.4	1.3	.10	.08	.07
31	.10	---	.15	.10	---	205	---	1.4	---	.12	.08	---
TOTAL	3.23	2.67	3.62	4.35	3.50	3629.35	399.9	130.9	129.91	9.95	1.85	3.27
MEAN	.10	.089	.12	.14	.13	117	13.3	4.22	4.33	.32	.060	.11
MAX	.16	.13	.20	.15	.25	820	97	13	64	.97	.10	.23
MIN	.07	.05	.02	.10	.09	.15	3.1	1.3	.87	.10	.01	.07
AC-FT	6.4	5.3	7.2	8.6	6.9	7200	793	260	258	20	3.7	6.5

CAL YR 1977 TOTAL 115.84 MEAN .32 MAX 14 MIN .00 AC-FT 230
WTR YR 1978 TOTAL 4322.50 MEAN 11.8 MAX 820 MIN .01 AC-FT 8570

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT											
03...	1545	.13	1660	8.4	12.5	13.2	138	.7	500	260	89
31...	1425	.10	1640	8.9	7.0	14.2	127	1.0	480	130	89
DEC											
12...	1305	.02	1910	7.3	.0	1.6	0	3.1	690	230	140
JAN											
04...	1605	.13	1720	7.2	.0	1.4	0	1.6	620	180	130
30...	1645	.10	1880	7.3	.0	5.6	42	1.1	610	170	130
FEB											
28...	1620	.21	1800	7.0	.0	3.4	26	.4	640	220	130
MAR											
20...	1520	1.0	925	--	1.0	--	--	--	--	--	--
26...	0820	700	300	--	.5	--	--	--	--	--	--
27...	1730	690	230	--	1.0	--	--	--	--	--	--
28...	1515	640	280	--	1.0	--	--	--	--	--	--
31...	1840	182	480	--	7.0	--	--	--	--	--	
APR											
04...	1420	44	900	8.2	8.0	9.8	90	2.2	280	160	60
MAY											
01...	1525	2.9	2300	8.1	15.0	--	--	--	830	540	150
30...	1430	1.4	3040	7.9	17.0	7.1	81	1.2	990	650	180
JUN											
26...	1615	70	1470	8.2	16.0	5.8	64	4.8	440	320	98
JUL											
31...	1420	.11	2300	7.8	25.0	16.0	208	--	730	510	110
SEP											
05...	1555	.11	2500	7.5	25.0	11.5	150	1.2	780	540	130

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
03...	68	210	47	4.1	7.6	300	--	250	1.9	650
31...	62	240	52	4.8	7.0	420	4	350	.9	620
DEC										
12...	82	250	44	4.2	9.0	560	0	460	45	760
JAN										
04...	71	230	44	4.0	7.7	530	0	430	54	630
30...	69	220	44	3.9	7.3	530	0	430	43	660
FEB										
28...	77	220	42	3.8	6.5	520	0	430	83	620
MAR										
20...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--			
APR										
04...	32	91	40	2.4	9.4	150	0	120	1.5	330
MAY										
01...	110	270	41	4.1	12	350	0	290	4.4	1100
30...	130	390	46	5.4	11	410	0	340	8.3	1300
JUN										
26...	48	130	38	2.7	14	150	0	120	1.5	560
JUL										
31...	110	270	44	4.4	9.3	270	0	220	6.8	980
SEP										
05...	110	310	46	4.8	10	290	0	240	15	1200

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
03...	7.9	.2	2.3	1240	1300	1180	1.69	.44	1	.01
31...	7.9	.7	6.5	1230	--	1240	1.67	.33	--	.00
DEC										
12...	12	.3	11	1550	--	1550	2.11	.08	--	.10
JAN										
04...	9.3	.3	14	1380	--	1350	1.88	.48	--	.16
30...	9.2	.4	14	1400	--	1370	1.90	.38	--	.11
FEB										
28...	9.2	.3	14	1380	--	1340	1.88	.78	--	.22
MAR										
20...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
04...	4.9	.1	11	643	--	612	.87	76.4	--	1.2
MAY										
01...	14	.2	4.1	1850	--	1830	2.52	14.5	--	.00
30...	89	.2	2.5	2420	--	2310	3.29	9.61	--	.02
JUN										
26...	8.2	.3	8.7	950	--	941	1.29	180	--	.86
JUL										
31...	13	.4	2.5	1780	--	1630	2.42	.53	--	.72
SEP										
05...	13	.4	3.7	2000	--	1930	2.72	.59	--	1.2

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT							
03...	.41	.00	.42	.42	1.9	.03	.02
31...	.43	.00	.43	.43	1.9	.01	.01
DEC							
12...	.62	.00	.68	.72	3.2	.02	.03
JAN							
04...	.62	.00	.71	.78	3.5	.06	.03
30...	.82	.17	.65	.93	4.1	.07	.04
FEB							
28...	1.3	.20	1.1	1.5	6.7	.06	.03
APR							
04...	1.1	.28	.82	2.3	10	.20	.09
MAY							
01...	.97	.13	.84	.97	4.3	.04	.01
30...	1.4	.43	.97	1.4	6.3	.03	.02
JUN							
26...	2.2	.40	1.8	3.1	14	.38	.07
JUL							
31...	1.4	.00	1.6	2.1	9.4	.01	.00
SEP							
05...	2.0	.00	2.1	3.2	14	.03	.01

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT							
03...	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--
DEC							
12...	30	1	200	1100	0	0	2
JAN							
04...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--
FEB							
28...	40	2	200	1000	0	0	1
APR							
04...	--	--	--	--	--	--	--
MAY							
01...	--	--	--	--	--	--	--
30...	0	2	200	1300	0	10	2
JUN							
26...	--	--	--	--	--	--	--
JUL							
31...	--	--	--	--	--	--	--
SEP							
05...	350	3	100	2000	0	0	3

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)
OCT										
03...	--	--	--	--	--	--	--	--	--	<19
31...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	330	0	50	1900	.0	0	1	3300	10	--
JAN										
04...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
FEB										
28...	100	2	50	1400	.2	1	1	2600	10	--
APR										
04...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
30...	9.	3	60	210	.0	0	0	2300	20	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
JUL										
31...	--	--	--	--	--	--	--	--	--	--
SEP										
05...	80	0	100	410	.0	1	2	3000	20	--

06349930 COAL BANK CREEK NEAR HAVELOCK, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT									
03...	<.4	34	2.2	27	2.0	.08	1.5	11	1.3
31...	--	--	--	--	--	--	--	9.0	.6
DEC									
12...	--	--	--	--	--	--	--	12	.6
JAN									
04...	--	--	--	--	--	--	--	11	.5
30...	--	--	--	--	--	--	--	11	.5
FEB									
28...	--	--	--	--	--	--	--	14	1.0
APR									
04...	--	--	--	--	--	--	--	12	--
MAY									
01...	--	--	--	--	--	--	--	15	.7
30...	--	--	--	--	--	--	--	20	--
JUN									
26...	--	--	--	--	--	--	--	14	>5.0
JUL									
31...	--	--	--	--	--	--	--	21	.5
SEP									
05...	--	--	--	--	--	--	--	30	<.9

DATE	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT					
03...	21	.01	--	--	--
31...	9	.00	--	--	--
DEC					
12...	68	.00	--	--	--
JAN					
04...	41	.01	--	--	--
FEB					
28...	17	.01	--	--	--
APR					
04...	42	5.0	--	--	--
MAY					
01...	127	.99	--	--	--
30...	46	.18	--	--	--
JUN					
26...	396	75	94	96	100
JUL					
31...	5	.00	--	--	--
SEP					
05...	6	.00	--	--	--

06350000 CANNONBALL RIVER AT REGENT, ND

LOCATION.--Lat 46°25'36", long 102°33'05", in NE¼NE¼ sec.13, T.134 N., R.95 W., Hettinger County, Hydrologic Unit 10130204, on right bank 400 ft (120 m) upstream from bridge on county highway, and 0.3 mi (0.5 km) north of Regent.

DRAINAGE AREA.--580 mi² (1,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,422.90 ft (738.500 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--28 years, 45.8 ft³/s (1.297 m³/s), 33,180 acre-ft/yr (40.9 hm³/yr); median of yearly mean discharges, 26 ft³/s (0.74 m³/s), 18,800 acre-ft/yr (23 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s (283 m³/s) Mar. 27, 1978, gage height, 20.55 ft (6.264 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1914, 26.1 ft (7.96 m) Apr. 16, 1950, from floodmarks, discharge, 20,300 ft³/s (575 m³/s), on basis of slope-area measurement at site 4 mi (6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	--	2,000	56.6	Backwater from ice		Mar. 27	1100	*10,000	283	*20.55	6.264

Minimum daily, 4.0 ft³/s (0.113 m³/s) Jan. 28 to Feb. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	7.9	9.0	5.5	4.0	5.5	1010	42	35	26	8.8	6.5
2	34	7.4	9.0	5.5	4.0	5.0	585	42	40	21	9.2	6.3
3	42	6.4	8.5	5.5	4.0	5.0	400	37	45	18	8.9	6.1
4	37	6.4	8.0	5.0	4.0	5.0	370	31	50	18	8.8	5.5
5	43	6.4	8.0	5.0	4.0	5.0	330	30	55	18	8.5	5.1
6	43	6.4	8.0	5.0	4.0	5.0	280	26	50	21	8.5	4.5
7	37	6.6	8.0	5.0	4.0	5.0	240	28	45	28	8.3	4.5
8	35	7.2	7.5	5.0	4.0	5.0	200	42	42	16	7.4	4.5
9	35	6.9	7.5	5.0	4.0	6.0	156	80	39	15	7.1	4.5
10	56	6.9	7.5	4.5	4.0	6.0	130	100	33	14	6.9	4.5
11	76	7.2	7.5	4.5	4.0	6.0	110	130	29	13	6.8	5.6
12	115	7.4	7.5	4.5	4.0	6.0	100	115	28	22	6.5	11
13	93	7.4	7.5	4.5	4.0	6.0	90	110	26	16	6.1	13
14	66	7.7	7.5	4.5	4.0	6.0	80	96	24	13	6.1	13
15	50	8.0	7.5	4.5	4.0	6.0	70	80	22	12	6.2	12
16	40	8.0	7.5	4.5	4.0	6.0	60	70	21	11	6.0	11
17	32	8.0	7.5	4.5	4.0	6.0	55	60	20	10	5.7	9.4
18	28	8.0	7.5	4.5	4.0	7.0	60	54	20	11	5.5	9.2
19	24	8.0	7.0	4.5	4.0	8.0	55	48	20	11	5.5	8.5
20	21	7.5	7.0	4.5	4.0	10	50	38	20	12	5.9	8.5
21	20	7.0	7.0	4.5	4.0	20	45	28	18	13	6.0	8.2
22	18	6.5	6.5	4.5	4.0	250	55	24	18	13	6.0	7.9
23	16	6.0	6.5	4.5	4.5	1760	70	23	26	12	6.0	7.4
24	15	6.0	6.5	4.5	6.0	1320	65	23	37	11	5.6	7.2
25	14	5.5	6.5	4.5	6.0	1240	60	22	58	9.5	6.2	6.9
26	13	5.5	6.0	4.5	5.5	3640	55	22	198	8.2	6.2	6.4
27	12	5.5	6.0	4.5	5.5	7880	50	22	107	7.2	6.2	6.0
28	10	6.0	6.0	4.0	5.5	6500	46	20	84	6.4	7.1	6.0
29	10	7.0	6.0	4.0	---	3400	43	20	45	6.2	6.9	6.0
30	9.2	8.0	5.5	4.0	---	2120	43	25	32	6.4	6.9	6.0
31	8.5	---	5.5	4.0	---	1610	---	30	---	9.2	6.8	---
TOTAL	1078.7	208.7	223.0	143.5	121.0	29859.5	4963	1518	1287	428.1	212.8	221.2
MEAN	34.8	6.96	7.19	4.63	4.32	963	165	49.0	42.9	13.8	6.86	7.37
MAX	115	8.0	9.0	5.5	6.0	7880	1010	130	198	28	9.2	13
MIN	8.5	5.5	5.5	4.0	4.0	5.0	43	20	18	6.2	5.5	4.5
AC-FT	2140	414	442	285	240	59230	9840	3010	2550	849	422	439

CAL YR 1977 TOTAL 7184.28 MEAN 19.7 MAX 532 MIN .24 AC-FT 14250
WTR YR 1978 TOTAL 40264.50 MEAN 110 MAX 7880 MIN 4.0 AC-FT 79860

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-66, 1971 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
12...	1535	124	1750	--	--	6.0	--	--	--	--	--
20...	1630	20	1430	7.8	15.5	10.0	12.0	111	55	93	320
NOV											
03...	1555	6.3	1590	--	--	6.0	--	--	--	--	--
17...	1030	8.0	1900	8.3	4.5	2.0	15.9	120	K4	--	530
DEC											
12...	1550	7.0	2000	--	--	.0	--	--	--	--	--
15...	0900	7.5	2110	7.7	-2.5	1.0	6.9	53	K6	56	600
JAN											
13...	1510	4.4	1990	--	--	.0	--	--	--	--	--
20...	0930	4.5	2190	7.8	-15.0	.0	7.2	54	17	92	640
FEB											
03...	1525	4.1	2020	--	--	.0	--	--	--	--	--
17...	1030	4.0	2160	7.5	-12.0	.0	6.4	48	15	29	610
MAR											
08...	1125	5.0	2130	--	--	.0	--	--	--	--	--
15...	0815	6.0	2150	7.8	-2.5	.5	6.0	46	K7	1300	630
20...	1755	10	1500	--	--	.5	--	--	--	--	--
23...	1500	1870	350	--	--	.5	--	--	--	--	--
24...	1050	1320	310	--	--	.5	--	--	--	--	--
27...	1610	4620	330	--	--	1.0	--	--	--	--	--
28...	1355	6460	270	--	--	1.5	--	--	--	--	--
30...	1000	2120	--	--	--	6.0	--	--	--	--	--
31...	1615	1630	470	--	--	5.0	--	--	--	--	--
APR											
05...	1330	330	--	--	--	--	--	--	--	--	--
05...	1630	328	875	8.3	--	7.0	--	--	--	--	72
25...	1130	60	1750	8.0	17.0	8.0	12.2	--	K4	110	580
MAY											
02...	1545	41	1910	--	--	14.0	--	--	--	--	--
16...	0900	54	2350	8.4	17.5	18.0	7.7	90	18	34	640
JUN											
02...	1825	38	2280	--	--	15.0	--	--	--	--	--
16...	1030	21	2440	8.4	19.5	22.0	7.1	89	200	440	690
30...	1740	35	1600	--	--	25.0	--	--	--	--	--
JUL											
19...	1300	11	1320	8.4	19.0	22.0	7.1	89	350	1300	580
31...	1745	7.3	1980	8.1	--	24.5	--	--	--	--	550
AUG											
01...	1530	9.4	1580	8.3	22.0	24.0	8.8	114	140	210	610
SEP											
05...	1915	4.7	1930	--	--	24.0	--	--	--	--	--
13	1220	13	1970	8.3	12.0	15.0	9.2	99	K290	680	570

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
20...	80	59	43	220	59	5.3	7.4	299	0	245	12
NOV											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	--	100	68	220	47	4.2	6.6	--	--	--	--
DEC											
12...	--	--	--	--	--	--	--	--	--	--	--
15...	200	110	79	290	51	5.2	8.3	493	0	404	16
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
20...	220	120	82	330	53	5.7	7.1	516	0	420	33
FEB											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	200	120	76	300	51	5.3	7.4	501	0	410	25
MAR											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	230	120	80	300	51	5.2	8.2	490	0	400	12
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
05...	6	15	8.4	54	60	2.8	4.8	80	0	66	.6
25...	310	120	69	220	45	4.0	8.1	325	0	270	5.2
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
18...	320	110	88	340	53	5.9	10	380	6	322	2.5
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
16...	310	120	94	350	52	5.8	8.3	445	8	378	2.9
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	240	110	75	240	47	4.3	7.9	404	4	338	2.6
31...	190	110	67	250	49	4.6	6.0	439	0	360	5.6
AUG											
01...	260	120	76	250	47	4.4	8.1	433	0	360	3.5
SEP											
05...	--	--	--	--	--	--	--	--	--	--	--
13	240	110	71	260	49	4.8	9.3	399	0	330	3.2

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
20...	470	7.3	.3	11	980	954	1.30	51	.16	.08	.78
NOV											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	640	10	.5	6.5	1330	--	1.81	28	.26	.01	.39
DEC											
12...	--	--	--	--	--	--	--	--	--	--	--
15...	740	12	.4	11	1510	1490	2.03	30	.54	.26	.51
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
20...	850	13	.5	13	1670	1670	2.27	20	.76	.08	.44
FEB											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	770	55	.5	13	1570	1590	2.16	17	.86	.12	.29
MAR											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	850	15	.4	12	1600	1630	2.22	26	.70	.09	.50
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
05...	120	.9	.1	4.3	233	248	.34	220	--	--	--
25...	680	7.3	.3	5.8	1290	1270	1.73	206	.08	.08	.76
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
18...	1000	9.0	.3	2.5	1780	1750	2.38	255	.00	.04	.71
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
16...	1000	8.7	.4	5.0	1870	1810	2.46	103	.08	.03	.92
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	690	8.2	.4	9.4	1360	1350	1.84	40	.19	.01	.85
31...	730	9.1	.4	7.2	1430	1400	1.90	27	--	--	--
AUG											
01...	740	8.9	.5	7.5	1440	1430	1.94	36	.13	.00	.89
SEP											
05...	--	--	--	--	--	--	--	--	--	--	--
13...	760	15	.5	4.7	1460	1430	1.94	50	.12	.05	.92

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
20...	.82	.98	4.3	.09	.02	--	--	--	--	--	--
NOV											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	.40	.66	2.9	.03	.00	10	--	1	--	--	30
DEC											
12...	--	--	--	--	--	--	--	--	--	--	--
15...	.77	1.3	5.8	.03	.02	--	--	--	--	--	--
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
20...	.52	1.3	5.7	.03	.02	--	--	--	--	--	--
FEB											
03...	--	--	--	--	--	--	--	--	--	--	--
17...	.41	1.3	5.6	.02	.01	--	--	--	--	--	--
MAR											
08...	--	--	--	--	--	--	--	--	--	--	--
15...	.59	1.3	5.7	.03	.00	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
25...	.84	.92	4.1	.03	.00	0	3	1	9	100	100
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
18...	.75	.75	3.3	.06	.03	--	--	--	--	--	--
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
16...	.95	1.0	4.6	.06	.02	20	2	2	--	200	--
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	.86	1.1	4.6	.08	.01	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	.89	1.0	4.5	.09	.69	10	--	2	--	--	200
SEP											
05...	--	--	--	--	--	--	--	--	--	--	--
13...	.97	1.1	4.8	.04	.01	--	--	--	--	--	--

DATE	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT										
12...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	400	--	--	--	--	--
NOV										
03...	--	--	--	--	--	--	--	--	--	--
17...	--	--	0	--	530	--	1	--	--	0
DEC										
12...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	620	--	--	--	--	--
JAN										
13...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	660	--	--	--	--	--
FEB										
03...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	670	--	--	--	--	--
MAR										
08...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	660	--	--	--	--	--
APR										
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	610	--	--	--	--	--
25...	30	0	0	1	400	1	1	1	10	0
MAY										
02...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	500	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
16...	--	0	0	--	670	2	0	--	5	0
30...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	720	--	--	--	--	--
31...	--	--	--	--	330	--	--	--	--	--
AUG										
01...	--	--	0	--	700	--	1	--	--	10
SEP										
05...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	800	--	--	--	--	--

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT 20...	--	--	--	--	--	--	--	70	--	--
NOV 17...	--	--	0	--	--	4	--	20	--	10
DEC 15...	--	--	--	--	--	--	--	50	--	--
JAN 20...	--	--	--	--	--	--	--	50	--	--
FEB 17...	--	--	--	--	--	--	--	50	--	--
MAR 15...	--	--	--	--	--	--	--	40	--	--
APR 05...	--	--	--	--	--	--	--	140	--	--
25...	5	2	0	15	4	2	5	20	9	4
MAY 18...	--	--	--	--	--	--	--	50	--	--
JUN 16...	--	0	0	--	12	6	--	30	--	--
JUL 19...	--	--	--	--	--	--	--	30	--	--
31...	--	--	--	--	--	--	--	1400	--	--
AUG 01...	--	--	0	--	--	7	--	30	--	0
SEP 13...	--	--	--	--	--	--	--	20	--	--

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) (71921)
OCT 20...	--	--	--	--	--	--	--	--	--
NOV 17...	--	--	40	--	90	--	--	.0	--
APR 05...	--	--	--	--	40	--	--	--	--
25...	14	40	30	270	130	720	.0	.0	.08
MAY 18...	--	--	--	--	--	--	--	--	--
JUN 16...	--	50	50	430	20	--	.0	.0	--
JUL 19...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	140	--	--	--	--
AUG 01...	--	--	50	--	100	--	--	.0	--
SEP 13...	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	VANADIUM, DISSOLVED (UG/L AS V) (01085)
OCT 20...	--	--	--	--	--	--	--	--	--
NOV 17...	--	1	--	2	--	--	1	--	.0
APR 05...	--	--	--	--	--	--	--	--	--
25...	5	0	7	1	30	1	0	0	.0
MAY 18...	--	--	--	--	--	--	--	--	--
JUN 16...	4	2	6	2	--	1	1	--	.0
JUL 19...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
AUG 01...	--	3	--	5	--	--	1	--	.0
SEP 13...	--	--	--	--	--	--	--	--	--

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT									
20...	--	--	--	--	--	--	--	--	--
NOV									
17...	--	10	--	--	--	--	--	--	--
APR									
05...	--	--	--	--	--	--	--	--	--
25...	20	20	51	<13	.5	13	1.4	--	--
MAY									
18...	--	--	--	--	--	--	--	--	--
JUN									
16...	20	20	--	--	--	--	--	--	--
JUL									
19...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
AUG									
01...	--	10	--	--	--	--	--	--	--
SEP									
13...	--	--	--	<18	.5	16	.8	15	.8

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
OCT								
20...	14	1.5	73	3.9	--	--	--	--
NOV								
17...	9.2	.7	47	1.0	--	--	--	--
DEC								
15...	10	.4	43	.87	--	--	--	--
JAN								
20...	8.9	.6	117	1.4	--	--	--	--
FEB								
17...	8.7	.5	50	.54	--	--	--	--
MAR								
15...	11	.6	38	.62	--	--	--	--
30...	--	--	436	2500	55	80	--	--
APR								
05...	--	--	99	88	--	--	2	5
25...	11	.9	28	4.5	--	--	--	--
MAY								
18...	14	1.0	31	4.5	--	--	--	--
JUN								
16...	14	1.6	100	5.7	--	--	--	--
JUL								
19...	12	2.6	124	3.7	--	--	--	--
AUG								
01...	12	1.4	119	3.0	--	--	--	--
SEP								
13...	13	.8	23	.81	--	--	--	--

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
APR								
05...	10	32	52	66	83	92	96	100
25...	--	--	--	--	--	--	--	--

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 20,77		NOV 17,77		DEC 15,77		JAN 20,78		FEB 17,78		MAR 15,78	
TIME	1630		1030		0900		0930		1030		0815	
TOTAL CELLS/ML	30000		890		110		78		130		220	
DIVERSITY: DIVISION	1.6		1.2		1.0		0.9		0.0		1.1	
.CLASS	1.6		1.2		1.0		0.9		0.0		1.1	
..ORDER	2.0		1.2		1.3		0.9		0.0		1.1	
...FAMILY	2.7		1.6		2.4		1.8		1.8		2.6	
....GENUS	3.1		1.6		2.9		2.0		2.0		2.8	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	310	1	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1700	6	630#	70	7	6	--	-	--	-	7	3
....CHODATELLA	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....FRANCEIA	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	620	2	--	-	--	-	--	-	--	-	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	2000	7	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	4500#	15	51	6	14	13	28#	35	--	-	58#	27
....TETRASTRUM	410	1	--	-	28#	25	--	-	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	310	1	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	--	-	7	6	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	410	1	--	-	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	7	6	--	-	--	-	--	-
....SKELETONEMA	2800	9	--	-	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	31#	24	--	-
....COCCONEIS	--	-	--	-	--	-	5	6	8	6	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	7	3
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	8	1	--	-	18#	24	--	-	15	7
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	7	6	--	-	--	-	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	--	-
....NAVICULA	210	1	8	1	7	6	23#	29	31#	24	29	13
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	22	10
....STAURONEIS	--	-	--	-	--	-	5	6	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	310	1	17	2	28#	25	--	-	55#	41	44#	20
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	7	6	--	-	8	6	29	13
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...MALLOMONADACEAE												
....MALLOMONAS	*	0	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	OCT 20,77		NOV 17,77		DEC 15,77		JAN 20,78		FEB 17,78		MAR 15,78	
TIME	1630		1030		0900		0930		1030		0815	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	85	10	--	-	--	-	--	-	--	-
....RHODOMONAS	310	1	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE												
....CRYPTOMONAS	210	1	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	1200	4	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....APHANIZOMENON	2400	8	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	12000#	39	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	210	1	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	210	1	59	7	--	-	--	-	--	-	7	3
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	*	0	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	38	4	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 25,78		MAY 18,78		JUN 16,78		JUL 19,78		AUG 1,78		SEP 13,78	
TIME	1130		0900		1030		1300		1530		1220	
TOTAL CELLS/ML	42000		16000		11000		20000		26000		9400	
DIVERSITY: DIVISION	0.4		1.5		1.7		1.3		1.1		1.7	
.CLASS	0.4		1.5		1.7		1.3		1.1		1.9	
..ORDER	0.8		1.8		2.1		1.9		1.6		2.1	
...FAMILY	0.8		2.1		2.5		2.2		1.8		2.6	
....GENUS	0.8		2.5		3.3		2.7		2.5		2.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1000	3	5000#	30	1700#	16	1100	6	800	3	360	4
....CHODATELLA	--	-	--	-	--	-	180	1	*	0	--	-
....DICTYOSPHAERIUM	--	-	150	1	1500	13	3500#	17	750	3	770	8
....FRANCEIA	--	-	*	0	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	260	1	--	-	190	2	*	0	*	0	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	180	1	--	-	--	-
....OOCYSTIS	--	-	370	2	870	8	--	-	--	-	51	1
....SELENASTRUM	--	-	260	2	--	-	*	0	--	-	150	2
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	300	2	190	2	230	1	--	-	--	-
....CRUCIGENIA	--	-	600	4	--	-	730	4	1500	6	210	2
....SCENEDESMUS	--	-	150	1	630	6	450	2	380	1	410	4
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	180	1	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	520	1	110	1	--	-	--	-	--	-	100	1
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	--	-	230	1	280	1	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	37000#	88	450	3	150	1	140	1	*	0	360	4
....MELOSIRA	--	-	--	-	290	3	--	-	--	-	--	-
....SKELETONEMA	--	-	--	-	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	*	0	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	51	1
...DIATOMACEAE												
....DIATOMA	--	-	*	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	--	-	280	1	100	1
....SYNEDRA	--	-	--	-	150	1	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	*	0	1400	13	--	-	*	0	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-	310	3
....NAVICULA	--	-	--	-	--	-	--	-	190	1	51	1
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	--	-
....STAURONEIS	--	-	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	2100	5	520	3	--	-	--	-	--	-	2700#	29
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...MALLOMONADACEAE												
....MALLOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-	360	4

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CONTINUED ..

06350000 CANNONBALL RIVER AT REGENT, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978 (CONTINUED)

DATE	APR 25,78		MAY 18,78		JUN 16,78		JUL 19,78		AUG 1,78		SEP 13,78	
TIME	1130		0900		1030		1300		1530		1220	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
....RHODOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	*	0	--	-	150	2
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCAEAE												
....AGMENELLUM	--	-	--	-	--	-	8000#	39	--	-	3200#	34
....ANACYSTIS	790	2	600	4	2200#	21	--	-	2600	10	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	4200#	21	5100#	20	--	-
....OSCILLATORIA	--	-	7000#	43	1200	11	--	-	12000#	46	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	110	1	--	-	590	3	*	0	51	1
....TRACHELOMONAS	260	1	670	4	440	4	450	2	1900	7	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DATE	LENGTH OF EXPO- SURE (DAYS) (00022)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN 16...	29	2.71	.280	2.83	1.50
JUL 19...	33	4.50	.760	6.93	5.12
AUG 01...	13	.460	.070	2.20	1.42

06351000 CANNONBALL RIVER BELOW BENTLEY, ND

LOCATION.--Lat 46°21'30", long 102°02'30", in SW¼SW¼ sec.6, T.133 N., R.90 W., Grant County, Hydrologic Unit 10130204, on left bank 0.25 mi (0.4 km) downstream from Thirty Mile Creek, and 2 mi (3 km) northeast of Bentley.

DRAINAGE AREA.--1,140 mi² (2,950 km²), approximately.

PERIOD OF RECORD.--April 1943 to current year. Published as "near New Leipzig" 1943 to June 1952. Records published for both sites October 1951 to June 1952.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder at present site and datum since Oct. 1, 1951. Datum of gage is 2,252.09 ft (686.437 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 7, 1947, nonrecording gage and Nov. 7, 1947, to June 16, 1952, water-stage recorder, at site 8 mi (13 km) downstream at different datum.

REMARKS.--Records good except those for the winter period, which are fair. Some diversions and some storage in small lakes above the station.

AVERAGE DISCHARGE.--35 years, 90.9 ft³/s (2.574 m³/s), 65,860 acre-ft/yr (81.2 hm³/yr); median of yearly mean discharges, 69 ft³/s (1.95 m³/s), 50,000 acre-ft/yr (62 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,800 ft³/s (1,467 m³/s) Apr. 17, 1950, gage height, 34.0 ft (10.363 m), from floodmark in well, site and datum then in use, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement at gage height 26.9 ft (8.199 m) and slope-area and contracted-opening measurements at gage height 34.0 ft (10.363 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1889 that of Apr. 17, 1950. Flood of Mar. 25 and 26, 1943, reached a stage of 26.9 ft (8.199 m), site and datum then in use, discharge 15,000 ft³/s (425 m³/s) by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	2245	*11,300	321	*22.97	7.001	May 14	0045	631	17.9	5.97	1.820

Minimum daily discharge, 10 ft³/s (0.283 m³/s) Feb. 10-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	24	25	14	11	14	2470	140	71	152	22	18
2	177	24	25	14	11	14	1620	131	67	100	20	17
3	229	24	25	12	11	14	1100	120	64	100	20	16
4	231	23	24	12	11	14	1120	109	71	81	19	15
5	181	23	22	12	11	14	1030	103	74	63	18	15
6	133	23	21	12	11	14	816	97	77	54	17	14
7	136	23	21	11	11	14	691	101	85	50	17	13
8	202	22	20	11	11	14	545	163	79	46	16	12
9	217	22	20	11	11	14	432	312	72	51	16	12
10	183	44	20	11	10	14	347	351	67	44	16	12
11	205	29	19	11	10	15	292	387	63	38	20	13
12	201	24	19	11	10	20	256	400	59	36	28	16
13	195	23	19	11	10	25	236	562	56	33	31	34
14	196	22	20	11	10	25	213	505	54	32	23	40
15	151	22	22	11	10	25	200	320	59	34	20	36
16	115	22	24	11	10	25	195	232	190	30	18	29
17	80	78	26	11	10	25	190	181	195	36	16	27
18	63	23	26	11	10	25	202	153	112	38	15	26
19	52	22	24	11	10	30	267	139	71	55	15	24
20	47	23	24	11	10	35	236	128	59	88	14	21
21	41	22	22	11	10	350	203	122	53	72	14	19
22	38	22	22	11	10	640	184	109	56	50	14	18
23	34	21	22	11	12	730	203	100	51	46	14	18
24	33	21	20	11	14	1460	230	101	47	44	14	17
25	31	20	20	11	16	3350	225	97	48	42	14	17
26	30	20	18	11	16	6370	215	89	58	38	14	16
27	28	20	18	11	16	9660	195	82	357	33	14	16
28	26	22	16	11	16	10700	176	77	392	29	55	16
29	26	24	16	11	---	9490	161	73	276	26	59	16
30	25	25	16	11	---	5590	149	72	222	24	33	16
31	24	---	14	11	---	3550	---	71	---	22	23	---
TOTAL	3410	757	650	351	319	52280	14399	5627	3205	1587	649	579
MEAN	110	25.2	21.0	11.3	11.4	1686	480	182	107	51.2	20.9	19.3
MAX	231	78	26	14	16	10700	2470	562	392	152	59	40
MIN	24	20	14	11	10	14	149	71	47	22	14	12
AC-FT	6760	1500	1290	696	633	103700	28560	11160	6360	3150	1290	1150

CAL YR 1977 TOTAL 30688.1 MEAN 84.1 MAX 4200 MIN 4.0 AC-FT 60870
WTR YR 1978 TOTAL 83813.0 MEAN 230 MAX 10700 MIN 10 AC-FT 166200

06351680 WHITE BUTTE FORK CEDAR CREEK NEAR SCRANTON, ND

LOCATION.--Lat 46°19'20", long 102°59'45", in NW¼ sec.21, T.133 N., R.98 W., Slope County, Hydrologic Unit 10130205, on left bank 1,200 ft (366 m) downstream from county highway bridge, and 13 mi (21 km) northeast of Scranton.

DRAINAGE AREA.--42.9 mi^2 (111 km^2).

PERIOD OF RECORD.--March 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,825 ft (861 m), from topographic map.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--13 years, 4.78 ft^3/s (0.135 m^3/s), 3,460 acre-ft/yr (4.26 hm^3/yr), median of yearly mean discharges, 4.6 ft^3/s (0.130 m^3/s), 3,330 acre-ft/yr (4.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 645 ft^3/s (18.3 m^3/s) May 8, 1970, gage height, 7.20 ft (2.19 m); maximum gage height, 7.76 ft (2.365 m) May 8, 1967; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 26	1530	*520	15	*9.20	2.80	Jun. 2	2200	51	1.44	3.82	1.16

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	.24	.80	.00	.00	.00	72	2.5	3.7	8.1	.02	.00
2	.51	.24	.80	.00	.00	.00	33	2.3	18	3.7	.01	.00
3	.21	.21	.70	.00	.00	.00	32	2.1	35	1.6	.01	.00
4	.15	.21	.70	.00	.00	.00	31	2.3	14	1.0	.01	.00
5	3.1	.18	.60	.00	.00	.00	35	2.8	5.2	.70	.00	.00
6	2.3	.18	.60	.00	.00	.00	25	3.1	2.9	.60	.00	.00
7	1.8	.21	.60	.00	.00	.00	19	8.6	2.4	.47	.00	.00
8	2.1	.21	.50	.00	.00	.00	14	15	1.7	.43	.00	.00
9	1.7	.24	.50	.00	.00	.00	9.3	30	1.3	.31	.00	.00
10	4.4	.24	.40	.00	.00	.00	9.0	22	1.0	.27	.00	.00
11	26	.86	.30	.00	.00	.00	7.6	13	.92	.21	.00	.00
12	13	.75	.20	.00	.00	.00	6.0	11	.86	.35	.00	.00
13	7.6	.55	.20	.00	.00	.00	6.5	21	.80	.31	.00	.00
14	3.7	.39	.20	.00	.00	.00	4.4	16	.55	.31	.00	.00
15	2.3	.27	.20	.00	.00	.00	5.8	9.0	.51	.18	.00	.00
16	1.7	.21	.20	.00	.00	.00	5.6	6.0	.55	.15	.00	.00
17	1.3	.15	.20	.00	.00	.00	5.2	4.2	.55	.05	.00	.00
18	1.0	.10	.20	.00	.00	.00	5.6	3.3	.51	.02	.00	.00
19	.92	.10	.15	.00	.00	.00	6.9	3.1	.47	.07	.00	.00
20	.86	.10	.15	.00	.00	.00	7.2	2.9	.39	.15	.00	.00
21	.70	.10	.15	.00	.00	.00	7.4	2.6	.35	.39	.00	.00
22	.60	.10	.15	.00	.00	.00	7.6	2.5	.31	.47	.00	.00
23	.65	.10	.15	.00	.00	.00	7.6	2.5	.31	.47	.00	.00
24	.55	.10	.10	.00	.00	316	5.6	2.3	.27	.31	.00	.00
25	.47	.10	.10	.00	.00	218	4.8	1.8	.39	.09	.00	.00
26	.47	.10	.10	.00	.00	361	3.9	1.6	.39	.07	.00	.00
27	.39	.10	.05	.00	.00	453	3.7	1.3	.60	.18	.00	.00
28	.31	.20	.05	.00	.00	290	3.2	1.3	.55	.04	.00	.00
29	.31	.30	.05	.00	---	170	2.8	1.2	.75	.02	.00	.00
30	.27	.70	.00	.00	---	185	2.8	1.5	2.3	.02	.00	.00
31	.27	---	.00	.00	---	124	---	2.6	---	.02	.00	---
TOTAL	80.07	7.54	9.10	.00	.00	2117.00	389.5	201.4	97.53	21.06	.05	.00
MEAN	2.58	.25	.29	.000	.000	68.3	13.0	6.50	3.25	.68	.002	.000
MAX	26	.86	.80	.00	.00	453	72	30	35	8.1	.02	.00
MIN	.15	.10	.00	.00	.00	.00	2.8	1.2	.27	.02	.00	.00
AC-FT	159	15	18	.00	.00	4200	773	399	193	42	.10	.00

CAL YR 1977 TOTAL 263.99 MEAN .72 MAX 45 MIN .00 AC-FT 524
WTR YR 1978 TOTAL 2923.25 MEAN 8.01 MAX 453 MIN .00 AC-FT 5800

06352000 CEDAR CREEK NEAR HAYNES, ND

LOCATION.--Lat 46°09'15", long 102°28'25", in W½ sec.20, T.131 N., R.94 W., Adams County, Hydrologic Unit 10130205, on left bank 30 ft (9 m) downstream from bridge on State Highway 8, and 12.5 mi (20 km) north of Haynes.

DRAINAGE AREA.--553 mi² (1,430 km²).

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,472.90 ft (753.740 m) National Geodetic Vertical Datum of 1929, North Dakota Highway Department benchmark. Prior to May 20, 1951, nonrecording gage on former bridge 400 ft (120 m) upstream at same datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--28 years, 35.4 ft³/s (1.00 m³/s), 25,650 acre-ft/yr (31.6 hm³/yr); median of yearly mean discharges, 28 ft³/s (0.79 m³/s), 20,300 acre-ft/yr (25 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,870 ft³/s (223 m³/s) Apr. 7, 1952, gage height, 21.25 ft (6.477 m); maximum gage height, 22.05 ft (6.721 m) Mar. 28, 1978, backwater from ice and snow; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 17, 1950 reached a stage of about 23 ft (7.0 m), discharge, 26,900 ft³/s (762 m³/s), by slope-area measurement at site 9 mi (14 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,500 ft³/s (212 m³/s) Mar. 28, gage height, 22.05 ft (6.721 m), backwater from ice and snow; only peak above base of 400 ft³/s (11.3 m³/s); minimum daily, 2.0 ft³/s (0.057 m³/s) Feb. 9-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	4.0	6.0	4.0	2.5	4.0	2910	57	41	13	5.3	3.5
2	13	3.7	6.0	4.0	2.5	3.5	1510	52	55	13	5.4	3.6
3	13	3.8	6.0	4.0	2.5	3.5	790	46	60	11	5.4	3.6
4	14	3.7	6.0	4.0	2.5	3.5	529	44	51	9.5	5.3	3.0
5	16	3.5	6.0	4.0	2.5	3.5	401	44	45	11	5.5	2.7
6	13	3.4	5.0	4.0	2.5	3.5	390	43	55	13	5.3	2.8
7	12	3.0	4.5	3.5	2.5	3.5	347	48	61	13	4.8	3.0
8	27	2.7	4.5	3.5	2.5	3.5	288	65	57	13	4.4	3.0
9	19	2.7	4.0	3.5	2.0	4.0	228	111	49	12	4.0	2.7
10	23	2.8	4.0	3.5	2.0	4.0	185	162	43	11	3.8	2.5
11	25	3.2	4.5	3.5	2.0	4.5	156	195	36	10	3.7	3.5
12	20	3.4	4.5	3.5	2.0	4.5	132	190	31	9.5	3.7	13
13	17	3.4	4.5	3.5	2.0	4.5	115	147	28	8.8	3.5	6.2
14	20	3.4	5.0	3.5	2.0	4.5	112	117	25	8.5	3.4	5.0
15	26	3.5	5.5	3.5	2.0	4.5	90	95	24	8.2	3.6	4.8
16	28	3.7	6.0	3.0	2.0	5.0	84	87	23	8.5	3.4	6.7
17	24	3.9	6.0	3.0	2.0	5.0	81	79	21	8.5	3.2	7.8
18	19	3.7	6.0	2.5	2.0	5.0	85	69	19	7.8	3.2	7.0
19	16	3.7	6.0	2.5	2.0	5.0	85	62	19	37	3.2	6.3
20	14	5.0	6.0	2.5	2.0	5.5	83	56	18	22	3.0	5.4
21	11	4.5	5.5	2.5	2.0	6.0	86	52	18	15	3.0	5.1
22	9.2	4.5	5.5	2.5	2.0	6.5	86	51	16	14	3.0	4.9
23	7.9	4.0	5.5	2.5	2.5	10	93	47	15	11	3.2	4.5
24	7.1	3.5	5.0	3.0	3.0	150	118	45	15	10	3.2	4.1
25	6.4	3.5	5.0	3.0	4.0	500	110	47	15	9.2	3.0	3.7
26	5.5	3.5	5.0	3.0	4.0	1300	95	46	14	8.4	3.0	4.2
27	5.0	3.5	4.5	3.0	4.0	2800	84	40	13	7.6	3.2	4.1
28	4.8	4.0	4.5	3.0	4.0	6540	80	36	12	6.5	4.8	3.4
29	4.8	5.0	4.5	3.0	---	6280	70	33	11	6.0	5.4	3.1
30	4.8	6.0	4.5	3.0	---	4190	63	33	12	5.8	3.9	2.9
31	4.5	---	4.0	3.0	---	4080	---	34	---	5.4	3.3	---
TOTAL	443.0	112.2	159.5	100.5	69.5	25947.0	9486	2233	902	347.2	122.1	136.1
MEAN	14.3	3.74	5.15	3.24	2.48	837	316	72.0	30.1	11.2	3.94	4.54
MAX	28	6.0	6.0	4.0	4.0	6540	2910	195	61	37	5.5	13
MIN	4.5	2.7	4.0	2.5	2.0	3.5	63	33	11	5.4	3.0	2.5
AC-FT	879	223	316	199	138	51470	18820	4430	1790	689	242	270

CAL YR 1977 TOTAL 3391.12 MEAN 9.29 MAX 121 MIN .59 AC-FT 6730
WTR YR 1978 TOTAL 40058.10 MEAN 110 MAX 6540 MIN 2.0 AC-FT 79460

06352400 TIMBER CREEK NEAR BENTLEY, ND

LOCATION.--Lat 46°06'05", long 101°57'26", in NE¼NE¼NE¼ sec.8, T.130 N., R.90 W., Grant County, Hydrologic Unit 10130205, on left bank 100 ft (30 m) upstream from bridge on North Dakota Highway 49, 17 mi (27 km) southeast of Bentley, and 7 mi (11 km) upstream from mouth.

DRAINAGE AREA.--100 mi^2 (260 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,280 ft (695 m), from topographic map.

REMARKS.--Records fair except those for the winter period, which are fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 110 ft^3/s (3.16 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 26	--	ice jam		*12.41	3.783	May 12	2230	111	3.14	5.01	1.527
Mar. 27	0415	2,240	63.4	12.36	3.767	Jun.25	0615	273	7.73	6.36	1.939

No flow, Feb. 15 to Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	2.8	2.0	.90	.70	.00	189	20	14	5.6	.75	.63
2	21	3.1	1.6	.80	.80	.00	98	19	14	5.3	.84	.59
3	18	3.2	1.9	.80	.80	.00	70	17	13	4.4	.50	.56
4	14	2.7	1.2	.80	.80	.00	91	16	11	3.6	.42	.48
5	12	2.5	1.0	.80	.80	.00	90	16	11	5.3	.34	.42
6	11	2.6	.80	.80	.80	.10	75	14	9.6	8.4	.28	.40
7	32	2.5	.70	.80	.80	.40	55	15	8.4	12	1.2	.42
8	59	2.4	.60	.80	.80	.80	39	25	7.6	18	1.1	.41
9	35	2.4	.40	.80	.80	1.1	32	61	7.1	11	.44	.35
10	30	2.3	.60	.80	.70	1.4	29	75	6.2	9.6	.28	.35
11	28	2.1	.80	.80	.40	1.7	26	51	5.6	6.7	.28	.39
12	25	2.1	1.2	.90	.30	2.0	24	75	4.9	4.9	.17	.44
13	20	1.7	1.4	1.0	.20	1.9	23	97	4.2	3.5	.14	.35
14	17	1.8	1.6	1.0	.10	1.7	23	71	3.9	2.7	.19	.35
15	14	1.9	1.6	1.1	.00	1.6	22	52	4.4	1.8	.51	.28
16	12	1.9	1.5	1.2	.00	1.2	22	34	5.3	1.1	.41	.28
17	11	2.3	1.4	1.2	.00	1.2	25	26	5.3	.91	.29	.28
18	9.2	3.0	1.3	1.3	.00	1.2	30	21	4.6	.70	.28	.42
19	8.1	2.7	1.3	1.2	.00	1.6	58	23	3.9	3.2	.28	.42
20	7.1	2.5	1.2	1.4	.00	2.0	68	19	2.9	4.9	.05	.42
21	6.7	2.0	1.1	1.5	.00	10	62	19	2.9	6.0	.00	.35
22	6.1	1.2	1.1	1.6	.00	200	46	19	3.0	4.3	.03	.28
23	5.4	1.0	1.1	1.5	.00	400	51	16	2.9	4.4	.33	.35
24	4.8	.80	1.1	1.4	.00	800	69	21	5.8	4.5	.26	.42
25	4.2	1.0	1.0	1.3	.00	1250	64	19	154	5.0	.28	.35
26	3.7	1.2	1.0	1.0	.00	1600	42	16	67	4.2	.29	.28
27	3.6	1.4	1.0	.70	.00	1980	32	14	33	3.1	.55	.28
28	3.5	1.7	1.0	.70	.00	949	26	13	15	2.3	.69	.28
29	3.2	2.0	.90	.70	---	435	24	12	7.1	1.6	.58	.21
30	3.1	2.0	.90	.70	---	331	23	12	5.8	1.5	.55	.28
31	2.9	---	.90	.70	---	293	---	12	---	.86	.56	---
TOTAL	451.6	62.80	35.20	31.00	8.80	8267.90	1528	920	443.4	151.37	12.87	11.32
MEAN	14.6	2.09	1.14	1.00	.31	267	50.9	29.7	14.8	4.88	.42	.38
MAX	59	3.2	2.0	1.6	.80	1980	189	97	154	18	1.2	.63
MIN	2.9	.80	.40	.70	.00	.00	22	12	2.9	.70	.00	.21
AC-FT	896	125	70	61	17	16400	3030	1820	879	300	26	22

WTR YR 1978 TOTAL 11924.26 MEAN 32.7 MAX 1980 MIN .00 AC-FT 23650

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
21...	1000	6.7	2220	8.1	8.5	8.5	12.0	110	K41	124	680
NOV											
17...	1115	3.8	2720	8.5	2.0	1.0	14.4	110	29	170	740
JAN											
18...	1250	1.3	3680	7.8	-20.0	.0	9.8	73	K3	52	1000
FEB											
02...	1745	.75	3500	7.8	-25.0	.0	--	--	K5	K4000	1100
MAR											
14...	1215	1.7	2680	8.0	1.5	.5	9.2	70	28	600	740
27...	1235	2140	--	--	--	2.0	--	--	--	--	--
APR											
05...	0930	82	--	--	11.0	7.0	--	--	--	--	--
18...	1300	29	2520	7.7	6.5	5.0	12.6	107	--	--	780
MAY											
19...	1500	20	3230	8.3	9.5	15.0	8.3	88	550	780	1200
JUN											
14...	1030	4.1	3320	8.3	25.5	23.0	8.8	110	K6300	730	1000
29...	0830	7.4	--	--	14.0	15.0	--	--	--	--	--
JUL											
19...	0845	3.4	2410	8.3	18.0	20.5	6.8	82	K3500	4300	650
AUG											
01...	1030	.70	2450	7.9	20.0	21.5	6.3	63	1500	1500	770
SEP											
13...	0805	.34	2200	8.0	8.0	13.0	8.0	82	77	130	600

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT											
21...	450	120	93	260	45	4.3	7.8	276	0	226	3.5
NOV											
17...	330	130	100	370	52	5.9	13	487	8	413	2.5
JAN											
18...	390	170	140	520	53	7.2	11	744	0	610	19
FEB											
02...	390	180	150	390	44	5.2	11	870	0	713	22
MAR											
14...	290	140	95	400	54	6.4	10	547	0	448	8.8
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	450	130	110	340	48	5.3	13	394	0	323	13
MAY											
19...	830	170	180	420	43	5.4	18	452	0	371	3.6
JUN											
14...	550	150	160	490	50	6.6	14	550	0	451	4.4
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	260	100	98	350	53	6.0	11	478	0	392	3.8
AUG											
01...	410	110	120	400	53	6.3	11	439	0	360	8.8
SEP											
13...	240	98	86	300	52	5.3	10	436	0	357	7.0

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT											
21...	940	9.8	.2	6.1	1700	1580	2.15	28.6	.22	.00	.71
NOV											
17...	1000	10	.0	.1	2040	1870	2.54	19.2	.56	.00	.73
JAN											
18...	1500	16	.4	14	2650	2740	3.73	9.6	2.5	.24	.46
FEB											
02...	1400	16	.3	14	2620	2590	3.52	5.2	3.2	.14	.42
MAR											
14...	1200	15	.4	12	2080	2140	2.91	9.8	3.3	.06	.53
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	1100	9.8	.2	4.6	1950	1900	2.58	149	.42	.03	.68
MAY											
19...	1600	12	.2	1.1	2750	2630	3.58	142	.01	.01	1.4
JUN											
14...	1500	10	.4	2.8	2650	2600	3.54	28.8	.25	.08	3.4
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	950	9.4	.3	3.8	1870	1760	2.39	16.2	.02	.02	1.4
AUG											
01...	1200	9.4	.3	2.9	2190	2070	2.82	3.9	.02	.00	1.2
SEP											
13...	860	16	.3	5.8	1640	1590	2.16	1.4	.01	.01	.54

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT											
21...	.71	.93	4.1	.05	.02	--	--	--	--	--	--
NOV											
17...	.73	1.3	5.7	.05	.01	10	--	1	--	--	100
JAN											
18...	.70	3.2	14	.03	.02	--	--	--	--	--	--
FEB											
02...	.56	3.8	17	.03	.01	--	--	--	--	--	--
MAR											
14...	.59	3.9	17	.03	.01	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	.71	1.1	5.0	.06	.02	0	2	1	9	200	0
MAY											
19...	1.4	1.4	6.2	.05	.00	--	--	--	--	--	--
JUN											
14...	3.5	3.8	17	.05	.00	50	3	2	14	200	200
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	1.4	1.4	6.3	.12	.02	--	--	--	--	--	--
AUG											
01...	1.2	1.2	5.4	.07	.03	170	--	3	--	--	200
SEP											
13...	.55	.56	2.5	.02	.00	--	--	--	--	--	--

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
OCT										
21...	--	--	--	--	760	--	--	--	--	--
NOV										
17...	--	--	0	--	700	--	0	--	--	8
JAN										
18...	--	--	--	--	740	--	--	--	--	--
FEB										
02...	--	--	--	--	670	--	--	--	--	--
MAR										
14...	--	--	--	--	510	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
APR										
05...	--	--	--	--	--	--	--	--	--	--
18...	110	0	0	0	510	1	0	0	10	0
MAY										
19...	--	--	--	--	1100	--	--	--	--	--
JUN										
14...	85	0	5	1	1200	0	2	0	0	0
29...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	750	--	--	--	--	--
AUG										
01...	--	--	0	--	920	--	1	--	--	10
SEP										
13...	--	--	--	--	490	--	--	--	--	--

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT										
21...	--	--	--	--	--	--	--	60	--	--
NOV										
17...	--	--	0	--	--	1	--	20	--	5
JAN										
18...	--	--	--	--	--	--	--	50	--	--
FEB										
02...	--	--	--	--	--	--	--	40	--	--
MAR										
14...	--	--	--	--	--	--	--	20	--	--
APR										
18...	5	2	0	6	1	2	14	30	3	3
MAY										
19...	--	--	--	--	--	--	--	60	--	--
JUN										
14...	2	1	0	9	9	6	6	20	3	2
JUL										
19...	--	--	--	--	--	--	--	60	--	--
AUG										
01...	--	--	0	--	--	7	--	550	--	3
SEP										
13...	--	--	--	--	--	--	--	50	--	--

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) (71921)
OCT									
21...	--	--	--	--	--	--	--	--	--
NOV									
17...	--	--	100	--	60	--	--	.0	--
JAN									
18...	--	--	--	--	--	--	--	--	--
FEB									
02...	--	--	--	--	--	--	--	--	--
MAR									
14...	--	--	--	--	--	--	--	--	--
APR									
18...	16	90	80	320	110	330	.0	.0	.00
MAY									
19...	--	--	--	--	--	--	--	--	--
JUN									
14...	9	130	120	240	150	260	.3	.0	.03
JUL									
19...	--	--	--	--	--	--	--	--	--
AUG									
01...	--	--	120	--	170	--	--	.0	--
SEP									
13...	--	--	--	--	--	--	--	--	--

DATE	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)
OCT									
21...	--	--	--	--	--	--	--	--	--
NOV									
17...	--	--	1	--	3	--	--	5	--
JAN									
18...	--	--	--	--	--	--	--	--	--
FEB									
02...	--	--	--	--	--	--	--	--	--
MAR									
14...	--	--	--	--	--	--	--	--	--
APR									
18...	3	0	2	16	8	21	1	1	0
MAY									
19...	--	--	--	--	--	--	--	--	--
JUN									
14...	7	6	4	12	4	14	1	2	0
JUL									
19...	--	--	--	--	--	--	--	--	--
AUG									
01...	--	--	0	--	5	--	--	2	--
SEP									
13...	--	--	--	--	--	--	--	--	--

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)
OCT									
21...	1600	--	--	--	--	--	--	--	--
NOV									
17...	--	--	--	20	--	41	.5	25	1.5
JAN									
18...	--	--	--	--	--	48	<.4	16	.4
FEB									
02...	--	--	--	--	--	--	--	--	--
MAR									
14...	--	--	--	--	--	<20	<.4	40	1.3
APR									
18...	--	.0	20	10	33	<23	<.4	19	2.0
MAY									
19...	--	--	--	--	--	--	--	--	--
JUN									
14...	--	.0	20	20	15	<24	.6	24	1.9
JUL									
19...	--	--	--	--	--	<19	<.6	15	2.1
AUG									
01...	--	.0	--	20	--	<15	<.4	16	.7
SEP									
13...	--	--	--	--	--	<16	<.4	9.5	<.4

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
OCT							
21...	14	.9	48	.87	--	--	--
NOV							
17...	13	.9	45	.46	--	--	--
JAN							
18...	12	.3	115	.40	--	--	--
FEB							
02...	15	.3	--	--	--	--	--
MAR							
14...	8.9	.7	37	.17	--	--	--
27...	--	--	572	3310	--	--	--
APR							
05...	--	--	42	9.3	23	50	72
18...	--	--	38	3.0	--	--	--
MAY							
19...	21	1.0	46	2.5	--	--	--
JUN							
14...	20	1.3	73	.81	--	--	--
29...	--	--	164	3.3	--	--	--
JUL							
19...	14	1.5	--	--	--	--	--
AUG							
01...	14	.6	27	.05	--	--	--
SEP							
13...	6.8	.4	22	.02	--	--	--

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
OCT							
21...	--	--	--	--	--	--	--
NOV							
17...	--	--	--	--	--	--	--
JAN							
18...	--	--	--	--	--	--	--
FEB							
02...	--	--	--	--	--	--	--
MAR							
14...	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--
APR							
05...	74	76	80	86	94	96	100
18...	--	--	--	--	--	--	--
MAY							
19...	--	--	--	--	--	--	--
JUN							
14...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
JUL							
19...	--	--	--	--	--	--	--
AUG							
01...	--	--	--	--	--	--	--
SEP							
13...	--	--	--	--	--	--	--

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)
JUN					
14...	26	1.32	.123	7.40	2.80
JUL					
19...	35	.550	.060	16.8	13.7
AUG					
01...	13	1.97	.640	9.45	5.35

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	OCT 21,77	NOV 17,77	JAN 18,78	FEB 2,78	MAR 14,78
TIME	1000	1115	1250	1745	1215
TOTAL CELLS/ML	6400	3000	99	29	60
DIVERSITY: DIVISION	1.4	2.0	1.4	0.0	1.5
.CLASS	1.4	2.0	1.4	0.0	1.5
..ORDER	2.2	2.1	1.8	0.0	1.5
...FAMILY	2.8	2.6	2.9	0.0	1.8
....GENUS	2.9	2.8	2.9	0.0	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	61	2	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	760	12	1200#	39	11	11	--	-	10#	17
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	100	3	--	-	--	-	20#	33
....SELENASTRUM	58	1	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	700	11	280	10	22#	22	--	-	--	-
....TETRASTRUM	230	4	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	2100#	33	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	990#	15	81	3	11	11	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	230	4	--	-	11	11	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	10#	17
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	20	1	5	6	--	-	10#	17
...GOMPHONEMATACEAE										
....GOMPHONEMA	120	2	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	120	2	61	2	16#	17	--	-	--	-
....PLEUROSIGMA	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	290	5	20	1	11	11	--	-	--	-
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	29#	100	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....RHODOMONAS	58	1	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	700	11	240	8	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	470#	16	--	-	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	58	1	320	11	11	11	--	-	10#	17
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	160	5	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CANNONBALL RIVER BASIN

06352400 TIMBER CREEK NEAR BENTLEY, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

DATE	APR 18,78	MAY 19,78	JUN 14,78	AUG 1,78	SEP 13,78
TIME	1300	1500	1030	1030	0805
TOTAL CELLS/ML	2600	2300	8300	12000	710
DIVERSITY: DIVISION	1.9	1.5	1.7	1.5	1.6
.CLASS	1.9	1.5	1.9	1.5	1.6
..ORDER	2.1	1.7	2.4	1.9	2.3
...FAMILY	2.1	1.8	2.6	2.4	2.5
....GENUS	2.1	1.9	2.7	3.1	2.6

ORGANISM	APR 18,78 CELLS /ML	PER-CENT	MAY 19,78 CELLS /ML	PER-CENT	JUN 14,78 CELLS /ML	PER-CENT	AUG 1,78 CELLS /ML	PER-CENT	SEP 13,78 CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	630	5	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	430#	18	430	5	940	8	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	310	3	--	-
....KIRCHNERIELLA	--	-	22	1	290	3	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	160	1	--	-
....SCENEDESMUS	--	-	--	-	190	2	1500	12	120#	16
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	1100#	43	--	-	330	4	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	310	3	43	6
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	340	13	200	9	3300#	40	1400	11	43	6
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	29	4
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	78	1	--	-
....SYNEDRA	--	-	110	5	--	-	120	1	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	*	0	--	-
...NAVICULACEAE										
....NAVICULA	--	-	22	1	140	2	*	0	43	6
....PLEUROSIGMA	--	-	--	-	--	-	--	-	14	2
...NITZSCHIACEAE										
....NITZSCHIA	230	9	45	2	770	9	*	0	29	4
...SURIRELLACEAE										
....SURIRELLA	--	-	22	1	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	330	4	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....RHODOMONAS	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	140	2	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	340	13	90	4	570	7	510	4	58	8
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	3200#	27	--	-
....OSCILLATORIA	--	-	--	-	--	-	2500#	21	320#	45
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	120	1	--	-
....PHACUS	--	-	--	-	--	-	--	-	14	2
....TRACHELOMONAS	570#	22	1400#	60	1800#	21	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06353000 CEDAR CREEK NEAR RALEIGH, ND

LOCATION.--Lat 46°05'30", long 101°20'00", in NE¼SE¼ sec.8, T.130 N., R.85 W., Grant County, Hydrologic Unit 10130205, on left bank at upstream side of bridge on N.D. Highway 31, 6 mi (10 km) upstream from mouth, and 19 mi (30 km) south of Raleigh.

DRAINAGE AREA.--1,750 mi² (4,530 km²), approximately.

PERIOD OF RECORD.--April to September 1939, March 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,881.23 ft (573.399 m) National Geodetic Vertical Datum of 1929. Prior to June 6, 1962, nonrecording gage at same site and datum, and June 6, 1962, to Sept. 7, 1972, at site 1 mi (2 km) upstream at datum 9.58 ft (2.920 m) higher.

REMARKS.--Records good except those for the winter period, which are fair.

AVERAGE DISCHARGE.--16 years (1962-78), 102 ft³/s (2.889 m³/s), 73,900 acre-ft/yr (91.1 hm³/yr); median of yearly mean discharges, 80 ft³/s (2.27 m³/s), 57,960 acre-ft/yr (71 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) Mar. 28, 1978, gage height, 13.95 ft (4.252 m); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1950, about 18 ft (5.486 m) Apr. 18, 1950, discharge 45,000 ft³/s (1,270 m³/s), on basis of slope-area measurement 5 mi (8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 28	0500	*13,400	379	*13.95	4.252	Mar. 31	0500	10,700	303	12.77	3.892

Minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Jan. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	17	10	2.2	.20	6.0	7450	305	133	188	21	9.2
2	148	15	9.4	2.2	.20	6.5	4520	281	123	155	19	9.2
3	71	14	8.9	2.2	.20	7.0	3250	260	117	135	17	9.0
4	50	13	8.2	2.0	.20	6.5	2520	239	115	168	16	8.2
5	42	12	7.6	1.8	.20	6.0	1750	227	111	183	15	8.0
6	33	12	7.0	1.7	.30	5.0	1300	209	107	121	15	7.8
7	134	12	6.4	1.7	.40	5.0	1010	218	109	90	14	7.4
8	319	12	6.0	1.7	.40	5.0	840	239	115	70	13	6.8
9	108	12	6.0	1.7	.40	5.0	708	227	111	57	12	6.6
10	79	10	6.0	1.6	.40	6.0	674	245	101	50	12	6.3
11	100	9.7	5.0	1.5	.40	13	590	344	97	50	12	6.1
12	76	9.1	6.0	1.4	.40	17	554	296	105	44	12	9.4
13	74	9.7	6.5	1.4	.40	20	503	521	103	38	12	12
14	73	9.7	7.0	1.3	.40	25	464	512	99	32	11	9.4
15	59	9.7	7.5	1.2	.40	40	434	497	94	28	13	7.8
16	51	9.1	7.0	1.2	.40	60	422	428	105	25	14	7.2
17	48	9.3	6.0	1.2	.40	70	425	362	97	22	12	7.4
18	42	9.5	6.0	1.1	.40	65	524	308	85	20	10	7.8
19	38	9.8	5.0	1.1	.40	80	596	275	73	28	9.2	8.0
20	33	10	4.5	1.0	.50	120	449	254	70	23	8.8	7.8
21	30	11	4.0	.90	.60	200	452	233	67	25	8.0	8.0
22	33	11	4.0	.80	1.0	700	482	221	61	39	8.0	13
23	33	11	4.0	.60	2.7	670	554	203	57	32	8.4	13
24	31	11	3.8	.50	2.9	830	503	191	130	28	8.4	12
25	28	10	3.8	.50	3.0	1100	464	177	99	29	8.2	11
26	25	9.7	3.6	.40	4.0	2300	470	168	140	52	36	10
27	22	9.1	3.6	.40	5.0	7000	416	180	168	44	21	9.8
28	22	8.7	3.2	.30	5.0	10900	386	174	347	33	15	10
29	21	8.5	3.0	.20	---	8240	353	148	278	28	10	10
30	19	9.0	3.0	.20	---	8240	326	143	209	24	9.0	10
31	17	---	2.5	.10	---	10100	---	140	---	21	9.6	---
TOTAL	2057	323.6	174.5	36.10	31.20	50848.0	33389	8225	3626	1882	409.6	268.2
MEAN	66.4	10.8	5.63	1.16	1.11	1640	1113	265	121	60.7	13.2	8.94
MAX	319	17	10	2.2	5.0	10900	7450	521	347	188	36	13
MIN	17	8.5	2.5	.10	.20	5.0	326	140	57	20	8.0	6.1
AC-FT	4080	642	346	72	62	100900	66230	16310	7190	3730	812	532

CAL YR 1977 TOTAL 9811.55 MEAN 26.9 MAX 494 MIN .00 AC-FT 19460
WTR YR 1978 TOTAL 101270.20 MEAN 277 MAX 10900 MIN .10 AC-FT 200900

06354000 CANNONBALL RIVER AT BREIEN, ND

LOCATION.--Lat 46°22'33", long 100°56'03", in sec.36, T.134 N., R.82 W., Morton County, Hydrologic Unit 10130206, on left bank at downstream side of bridge on State Highway 6, 1,500 ft (460 m) downstream from Louise Creek, and 0.6 mi (1.0 km) southeast of Breien. Prior to June 12, 1973, at site 600 ft (180 m) upstream on right bank.

DRAINAGE AREA.--4,100 mi^2 (10,600 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1934 to current year.

REVISED RECORDS.--WSP 786: 1934. WSP 1146: 1943. WSP 1279: 1936-37(M), 1947(M). WSP 1509: 1955(M).

GAGE.--Water-stage recorder. Datum of gage is 1,675.54 ft (510.705 m) National Geodetic Vertical Datum of 1929. Prior to June 12, 1973, at site 600 ft (180 m) upstream at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those for the winter period, which are fair. Some storage in several small lakes above station.

AVERAGE DISCHARGE.--44 years, 249 ft^3/s (7.052 m^3/s), 180,400 acre-ft/yr (222 hm^3/yr); median of yearly mean discharges, 180 ft^3/s (5.10 m^3/s), 130,000 acre-ft/yr (160 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,800 ft^3/s (2,680 m^3/s) Apr. 19, 1950, gage height, 22.30 ft (6.797 m), from floodmarks, from rating curve extended above 16,000 ft^3/s (453 m^3/s) on basis of slope-area and contracted-opening of peak flow, site and datum then in use; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 29	--	[a]22,000	623	*16.38	4.993
Mar. 31	0100	*22,600	640	*16.38	4.993
Apr. 19	2030	1,420	40.2	4.17	1.271
May 13	0400	1,620	45.9	4.45	1.356
May 25	1930	5,540	157	8.70	2.652
Jun. 28	2200	1,240	35.1	3.90	1.189

Minimum daily, 5.0 ft^3/s (0.142 m^3/s) Nov. 20.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	435	55	24	24	8.5	8.0	17500	712	430	742	88	45
2	465	51	26	24	8.5	8.0	10900	652	420	640	79	69
3	358	46	26	23	8.5	8.0	7560	598	385	540	77	86
4	253	44	28	23	8.0	8.0	5590	555	362	455	71	69
5	264	42	28	22	8.0	8.0	4430	515	335	505	66	58
6	327	39	28	22	8.0	8.0	3920	490	315	405	60	48
7	435	35	28	20	8.0	8.0	3200	475	288	358	56	40
8	802	33	24	20	8.0	8.0	2550	555	288	340	53	35
9	676	26	20	19	7.5	8.0	2140	550	288	256	49	32
10	410	22	18	18	7.5	8.0	1860	545	278	216	48	30
11	485	21	21	18	7.5	9.0	1620	640	284	189	48	28
12	450	24	22	17	7.5	11	1450	1190	274	174	56	30
13	348	38	22	17	7.5	13	1270	1510	246	160	53	30
14	335	34	24	16	7.5	15	1140	1230	232	152	60	38
15	323	32	26	16	7.5	17	1040	1320	256	135	385	84
16	299	35	26	16	7.5	20	988	1230	366	122	226	55
17	288	36	27	14	7.5	40	982	908	400	113	119	45
18	246	18	28	13	7.5	100	1110	820	380	103	84	45
19	210	20	29	13	7.5	160	1280	742	410	300	71	65
20	177	5.0	30	13	7.5	550	1140	664	430	295	60	69
21	155	10	32	12	7.5	700	1000	586	335	288	54	65
22	135	12	32	12	7.5	2500	1010	545	278	250	49	60
23	131	19	34	12	7.5	2800	1130	535	236	292	48	55
24	117	21	34	10	7.5	3500	1200	505	207	260	45	55
25	107	25	36	10	7.5	3800	1080	2710	405	216	42	55
26	97	24	37	10	7.5	6000	1020	2150	622	174	48	58
27	90	23	38	9.0	7.5	15100	994	802	754	160	101	53
28	81	23	40	9.0	7.5	19300	892	622	851	148	158	50
29	74	23	33	9.0	---	21300	836	535	934	122	145	46
30	68	23	24	9.0	---	21400	772	490	754	109	71	46
31	60	---	24	9.0	---	21900	---	465	---	97	53	---
TOTAL	8701	859.0	869	479.0	215.5	119315.0	81606	25926	12043	8316	2625	1544
MEAN	281	28.6	28.0	15.5	7.70	3849	2720	836	401	268	84.7	51.5
MAX	802	55	40	24	8.5	21900	17500	2710	934	742	385	86
MIN	60	5.0	18	9.0	7.5	8.0	772	465	207	97	42	28
AC-FT	17260	1700	1720	950	427	236700	161900	51420	23890	16490	5210	3060

CAL YR 1977 TOTAL 49656.83 MEAN 136 MAX 3560 MIN .08 AC-FT 98490
WTR YR 1978 TOTAL 262498.50 MEAN 719 MAX 21900 MIN 5.0 AC-FT 520700

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-50 (partial-record station), 1970-72, 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1972 to September 1974 (weekly); October 1974 to current year.
WATER TEMPERATURES: July 1972 to September 1974 (weekly); October 1974 to current year.

REMARKS.--Sediment records from May 1948 to September 1951, July 1959 to September 1971 are available from U.S. Corps of Engineers, Omaha, Neb.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,500 micromhos Jan. 12, 1977; minimum daily, 300 micromhos Sept. 23, 1977 and March 23, 1978.
WATER TEMPERATURES: Maximum daily, 30.0°C on July 23, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,000 micromhos Feb. 1; minimum daily, 300 micromhos Mar. 23.
WATER TEMPERATURES: Maximum daily, 29.0°C Aug. 13; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)
OCT										
25...	1415	108	1540	8.5	--	8.5	--	11.3	102	--
NOV										
23...	1500	18	2000	8.6	-12.0	.5	--	11.4	82	--
DEC										
27...	1545	38	2350	7.8	-5.0	.0	--	7.4	54	--
JAN										
27...	1250	9.4	2680	7.7	-20.0	.0	--	7.3	52	--
FEB										
23...	1340	7.5	2450	7.7	2.0	.0	--	7.3	53	--
MAR										
22...	1850	2540	190	--	--	.0	--	--	--	--
24...	1725	3480	195	--	--	.5	--	--	--	--
27...	1730	16900	310	--	--	1.5	--	--	--	--
29...	1630	19730	340	--	--	2.5	--	--	--	--
31...	1145	22860	350	--	--	5.5	--	--	--	--
APR										
07...	1540	2990	670	--	--	7.5	--	--	--	--
11...	1450	1550	990	8.1	16.5	8.5	160	10.5	95	50
24...	1305	1190	1440	8.3	10.0	8.0	130	11.2	100	22
MAY										
25...	1325	2260	960	8.2	27.0	17.5	1200	5.0	54	270
JUN										
13...	1430	--	2100	--	--	24.0	--	--	--	--
26...	1330	769	1140	8.2	22.5	23.5	380	7.2	89	76
JUL										
28...	1230	147	1720	8.4	23.0	25.0	24	7.8	98	35
AUG										
29...	1050	138	900	8.2	21.0	19.0	990	8.0	94	120
SEP										
25...	1530	56	1600	8.4	26.0	17.0	10	9.8	--	5

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)
OCT									
25...	K20	--	450	210	76	62	200	49	4.1
NOV									
23...	K2	190	580	210	100	79	280	51	5.1
DEC									
27...	K9	39	720	270	130	96	340	50	5.5
JAN									
27...	--	--	830	280	150	110	400	51	6.1
FEB									
23...	K9	[illegible]	720	170	130	95	370	52	6.0
APR									
07...	--	--	--	--	--	--	--	--	--
11...	K20	K380	330	150	69	39	100	39	2.4
24...	K33	313	460	210	87	59	160	43	3.2
MAY									
25...	K116000	42000	130	0	26	15	64	51	2.5
JUN									
13...	--	--	--	--	--	--	--	--	--
26...	13700	--	290	100	54	38	150	52	3.8
JUL									
28...	83	100	470	180	84	64	240	52	4.8
AUG									
29...	15400	28000	160	8	32	19	140	65	4.8
SEP									
25...	K36	33	260	4	71	21	230	64	6.2

K - Results based on colony count outside the acceptable range (non-ideal colony count).

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT									
25...	11	290	1	240	1.5	590	9.1	--	.2
NOV									
23...	11	450	0	370	1.8	740	11	--	.4
DEC									
27...	12	550	0	450	14	970	18	--	.4
JAN									
27...	12	670	0	550	21	1100	19	--	.5
FEB									
23...	11	660	0	540	21	890	7.6	--	.5
MAR									
22...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
07...	--	--	--	--	--	--	--	--	--
11...	9.4	220	0	180	2.8	350	5.1	.5	.2
24...	8.5	310	0	250	2.5	540	7.3	.3	.2
MAY									
25...	6.7	--	--	160	--	120	2.5	1.3	.1
JUN									
13...	--	--	--	--	--	--	--	--	--
26...	8.2	--	--	190	--	390	5.7	.3	.3
JUL									
28...	12	--	--	290	--	650	12	.3	.4
AUG									
29...	7.2	--	--	150	--	290	7.0	1.0	.3
SEP									
25...	10	--	--	260	--	590	12	--	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT									
25...	8.8	1120	1100	1.52	327	--	--	.00	.02
NOV									
23...	9.0	1500	1450	2.04	72.9	--	--	.09	.04
DEC									
27...	10	1810	1850	2.46	186	--	--	.37	.18
JAN									
27...	13	2100	2130	2.86	53.3	--	--	.67	.12
FEB									
23...	14	1860	1840	2.53	37.7	--	--	.73	.11
MAR									
22...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
APR									
07...	--	--	--	--	--	--	--	--	--
11...	8.7	707	690	.96	2960	.41	.03	.44	.18
24...	8.0	1040	1020	1.41	3340	.22	.01	.23	.01
MAY									
25...	3.9	288	334	.39	1760	.58	.02	.60	.08
JUN									
13...	--	--	--	--	--	--	--	--	--
26...	7.8	791	769	1.08	1640	.26	.02	.28	.00
JUL									
28...	8.7	1280	1250	1.74	508	.03	.01	.04	.01
AUG									
29...	9.0	603	595	.82	225	.35	.02	.37	.16
SEP									
25...	5.0	1150	1100	1.56	174	--	--	.02	.01

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT										
25...	--	--	--	.56	--	--	.08	.02	--	--
NOV										
23...	--	--	--	.57	--	--	.05	.00	--	--
DEC										
27...	--	--	--	.83	--	--	.03	.02	--	1
JAN										
27...	.63	.75	.27	.48	1.4	6.3	.01	.01	--	--
FEB										
23...	.27	.38	.00	.38	1.1	4.9	.02	.01	--	--
APR										
11...	1.1	1.3	.63	.67	1.7	7.7	.26	.03	550	4
24...	1.2	1.2	.86	.34	1.4	6.3	.15	.01	100	4
MAY										
25...	--	--	--	.38	--	--	1.0	.05	37000	10
JUN										
26...	2.3	2.3	1.7	.62	2.6	11	.46	.04	14000	6
JUL										
28...	1.2	1.2	.10	1.1	1.2	5.5	.06	.00	460	2
AUG										
29...	2.6	2.8	2.3	.48	3.2	14	.45	.01	0	20
SEP										
25...	.75	.76	.23	.53	.78	3.5	.03	.00	300	1

DATE	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
NOV										
23...	--	--	--	--	--	--	--	--	--	--
DEC										
27...	0	1	100	0	100	--	--	0	0	0
JAN										
27...	--	--	--	--	--	--	--	--	--	--
FEB										
23...	--	--	--	--	--	--	--	--	--	--
APR										
11...	1	3	100	0	100	10	230	--	--	0
24...	--	--	200	--	--	0	280	1	--	--
MAY										
25...	--	--	800	--	--	0	340	1	--	--
JUN										
26...	3	3	400	200	--	0	460	1	0	1
JUL										
28...	--	--	200	--	--	0	570	2	--	--
AUG										
29...	--	--	300	--	--	10	350	1	--	--
SEP										
25...	0	1	0	0	100	0	550	1	0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)
DEC 27...	0	0	0	0	0	1	6	4	2
APR 11...	10	10	0	8	8	0	20	19	1
24...	0	--	--	5	--	--	15	--	--
MAY 25...	75	--	--	40	--	--	100	--	--
JUN 26...	40	40	0	6	6	0	50	47	3
JUL 28...	10	--	--	0	--	--	7	--	--
AUG 29...	40	--	--	25	--	--	92	--	--
SEP 25...	10	0	10	0	0	0	7	6	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)
DEC 27...	200	--	40	5	0	6	--	40	10
APR 11...	3700	--	70	--	--	1	40	500	470
24...	5400	--	--	--	--	--	60	210	--
MAY 25...	78000	--	--	--	--	--	80	2200	--
JUN 26...	22000	22000	70	--	--	3	60	490	490
JUL 28...	970	--	--	--	--	--	70	160	--
AUG 29...	37000	--	--	36	--	--	70	570	--
SEP 25...	400	380	20	--	--	--	70	100	90

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)
OCT 25...	--	--	--	--	--	--	--	--	--
NOV 23...	--	--	--	--	--	--	--	--	--
DEC 27...	30	.0	.0	.0	--	--	1	0	1
JAN 27...	--	--	--	--	--	--	--	--	--
FEB 23...	--	--	--	--	--	--	--	--	--
APR 11...	30	.5	.5	.0	3	16	1	0	1
24...	--	.0	--	--	5	15	1	--	--
MAY 25...	--	.3	--	--	6	140	0	--	--
JUN 26...	0	.1	.1	.0	5	39	1	1	0
JUL 28...	--	.0	--	--	7	3	1	--	--
AUG 29...	--	.3	--	--	9	90	1	--	--
SEP 25...	10	.1	.0	.1	8	8	1	1	0

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT								
25...	--	--	--	--	--	--	10	3.3
NOV								
23...	--	--	--	--	--	--	8.6	.8
DEC								
27...	0	0	0	10	10	0	10	.2
JAN								
27...	--	--	--	--	--	--	11	.2
FEB								
23...	--	--	--	--	--	--	8.3	--
APR								
11...	0	0	0	80	70	10	7.4	4.5
24...	0	--	--	40	--	--	9.2	--
MAY								
25...	0	--	--	500	--	--	--	32
JUN								
26...	0	0	0	120	0	120	9.6	--
JUL								
28...	0	--	--	60	--	--	11	2.1
AUG								
29...	0	--	--	220	--	--	9.5	12
SEP								
25...	0	0	0	30	30	0	6.1	1.3

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)
OCT									
25...	42	12	94	--	--	--	--	--	--
NOV									
23...	12	.58	88	--	--	--	--	--	--
DEC									
27...	26	2.7	99	--	--	--	--	--	--
JAN									
27...	6	.15	--	--	--	--	--	--	--
FEB									
23...	15	.30	91	--	--	--	--	--	--
APR									
11...	504	2110	78	--	--	--	--	--	--
24...	437	1400	55	--	--	--	--	--	--
MAY									
25...	4000	24400	66	--	--	--	--	--	--
JUN									
19...	--	--	--	42	88	98	99	11	100
26...	1050	2180	95	--	--	--	--	--	--
JUL									
26...	54	21	92	--	--	--	--	--	--
AUG									
29...	2130	794	100	--	--	--	--	--	--
SEP									
25...	32	4.8	94	--	--	--	--	--	--

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C	DATE	MG/L	DEGREES, C
Aug. 28, 1978			2400	7.8	20.5	0700	7.7	19.0
1500	7.7	22.5				0800	7.8	18.5
1600	7.6	22.5	Aug. 29, 1978			0900	7.8	18.5
1700	7.9	23.0	0100	7.6	20.5	1000	8.0	18.5
1800	8.0	23.0	0200	7.6	20.0	1100	8.0	19.0
1900	7.9	23.0	0300	7.7	19.5	1200	8.0	20.0
2000	8.0	22.5	0400	7.7	19.5	1300	7.9	21.0
2100	7.9	21.5	0500	7.7	19.5	1400	8.0	21.5
2200	7.8	21.5	0600	7.8	19.0	1500	7.8	22.0
2300	7.8	21.0						

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1600	2000	2200	3000	2300	450	1900	1800	1900	1800	1200
2	900	1650	2000	2200	2800	2300	450	1900	1900	1600	1700	1200
3	1000	1700	2000	2200	2800	2200	500	1900	1900	1800	1800	1250
4	1200	1700	2000	2200	2700	2200	500	1900	1800	1700	1800	1300
5	1100	1700	2000	2200	2600	2200	525	2000	1800	1400	1700	1400
6	1100	1700	2000	2200	2600	2300	600	2000	1900	1500	1800	1500
7	900	1700	2200	2300	---	2300	650	2000	1900	1500	1900	1500
8	800	1700	2200	2300	2600	2300	800	1900	1900	1300	1800	1600
9	850	1700	2250	2300	2700	2300	850	1800	2000	1400	1600	1600
10	850	1800	2150	2300	2600	2200	950	1800	1900	1500	1800	1400
11	950	1700	2200	2300	2400	2100	1000	1800	2000	1500	2000	1300
12	1000	1800	2200	2300	2400	2000	1050	1700	2000	1500	1700	1400
13	1050	2000	2200	2300	2400	1800	1100	1500	1900	1500	1600	1400
14	1200	1900	2100	2300	2400	1800	1150	1500	2000	1500	1700	1500
15	1300	1800	2100	2300	2400	1700	1200	1800	2000	1600	1200	1600
16	1400	1600	2200	2300	2400	2000	1200	1800	2000	1700	775	1750
17	1450	1900	2200	2300	2400	1800	1200	2050	1300	1600	1200	1700
18	1500	1900	2100	2400	2200	2000	1200	2100	1800	1800	---	1650
19	1400	1900	2200	2400	2100	1900	1200	2000	1800	1400	---	1700
20	1400	---	2100	2400	2200	1400	1100	2100	1900	1300	---	1800
21	1450	2000	2100	2400	2200	1000	1200	2100	1800	1300	1500	1800
22	1500	2100	2200	2400	2200	800	1300	2000	1900	1300	1600	1700
23	1600	2000	2200	2300	2200	300	1350	2000	1900	1400	1600	1800
24	1600	2000	2150	2300	2200	340	1350	2000	1900	1400	1600	1600
25	1600	2000	2200	---	2200	340	1400	1400	1700	1300	1600	1600
26	1600	2000	2100	---	2200	420	1450	500	950	1500	1700	1500
27	1600	2100	2200	2300	2200	360	1700	600	900	1400	1400	1600
28	1650	2000	2000	2200	2300	320	1750	950	600	1400	1200	1500
29	1700	2000	2100	2200	---	350	1750	1700	850	1700	1150	1600
30	1700	2000	2250	2400	---	380	1800	1750	1700	1800	1100	1700
31	1700	---	2200	2400	---	360	---	1800	---	1800	1050	---
MEAN	1300	1860	2130	2300	2420	1490	1090	1750	1720	1530	1560	1540

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	10.0	.0	.0	.0	.0	4.5	13.5	13.0	24.5	22.5	25.5
2	10.0	7.5	.0	.0	.0	.0	3.5	12.5	12.5	24.5	17.5	20.0
3	10.0	4.5	.0	.0	.0	.0	3.5	14.5	17.5	27.5	17.0	27.5
4	10.0	7.5	.0	.0	.0	.0	5.0	12.5	22.5	24.5	18.5	22.5
5	11.0	5.0	.0	.0	.0	.0	5.5	13.0	18.5	27.0	21.5	23.5
6	7.0	10.5	.0	.0	.0	.0	6.5	15.5	22.5	24.0	25.0	26.5
7	5.0	7.5	.0	.0	.0	.0	6.5	12.5	18.5	20.5	27.5	21.5
8	5.0	6.5	.0	.0	.0	.0	5.0	8.0	22.5	22.5	23.5	25.5
9	6.0	.0	.0	.0	.0	.0	5.0	10.5	24.0	23.5	21.5	23.5
10	5.0	.0	.0	.0	.0	.0	5.5	14.5	22.5	23.5	26.5	19.5
11	4.5	.0	.0	.0	.0	.0	7.0	13.5	18.5	21.5	27.5	20.0
12	5.0	.0	.0	.0	.0	.0	4.5	12.5	17.0	24.5	25.0	18.0
13	6.0	.0	.0	.0	.0	.0	5.0	13.0	23.5	22.5	29.0	17.5
14	7.5	.0	.0	.0	.0	.0	5.5	12.0	18.5	23.5	24.5	15.0
15	8.0	.0	.0	.0	.0	.0	6.0	16.5	25.0	27.5	22.5	12.0
16	10.0	.0	.0	.0	.0	.0	5.5	17.5	22.5	25.0	21.0	16.5
17	9.5	.0	.0	.0	.0	---	4.0	19.5	18.5	27.5	20.5	12.5
18	10.5	.0	.0	.0	.0	---	3.5	18.5	23.5	25.0	---	11.5
19	11.0	.0	.0	.0	.0	---	2.0	15.5	21.5	21.5	---	9.5
20	9.5	---	.0	.0	.0	.0	3.5	11.0	19.0	22.0	---	15.0
21	8.5	.0	.0	.0	.0	.0	6.5	15.0	23.5	20.5	20.0	10.0
22	5.5	.0	.0	.0	.0	.0	7.5	17.0	24.5	21.5	19.0	12.5
23	8.5	.0	.0	.0	.0	.0	5.5	20.5	27.0	26.0	17.5	13.5
24	7.5	.0	.0	.0	.0	.0	4.5	20.0	28.5	28.0	25.5	18.5
25	9.5	.0	.0	---	.0	.0	10.5	15.0	23.5	25.5	26.0	18.0
26	8.5	.0	.0	---	.0	.0	4.5	17.0	19.0	24.5	25.0	18.5
27	8.0	.0	.0	.0	.0	.0	11.5	18.5	22.0	21.5	22.0	17.5
28	8.5	.0	.0	.0	.0	.0	11.5	19.5	23.5	19.5	21.5	15.5
29	10.0	.0	.0	.0	---	.0	11.0	21.0	23.5	21.5	21.5	12.5
30	11.5	.0	.0	.0	---	2.5	10.5	18.5	25.0	22.5	24.5	10.5
31	8.5	---	.0	.0	---	3.5	---	14.0	---	24.5	22.5	---
MEAN	8.0	2.0	.0	.0	.0	.0	6.5	15.0	21.5	24.0	22.5	17.5

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	APR 11,78	APR 28,78	MAY 25,78	JUN 26,78	JUL 28,78	AUG 29,78
TIME	1450	1305	1325	1330	1230	1850
TOTAL CELLS/ML	850	3300	940	3800	15000	2400
DIVERSITY: DIVISION	0.2	1.4	1.7	0.7	1.2	1.2
.CLASS	0.2	1.4	1.7	0.7	1.2	1.2
..ORDER	0.2	2.1	2.1	0.9	1.3	1.2
...FAMILY	0.2	2.1	2.6	1.0	2.3	1.2
....GENUS	0.2	2.1	2.8	1.1	3.1	1.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...MICRACTINIACEAE												
....GOLENKINIA	--	-	--	-	--	-	--	-	*	0	--	-
....MICRACTINIUM	--	-	--	-	--	-	37	1	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	480	14	--	-	37	1	*	0	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	1700	11	--	-
....NEPHROCYTIUM	--	-	--	-	--	-	55	1	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	300	2	--	-
....TREUBARIA	--	-	--	-	--	-	--	-	370	2	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	180	5	780	5	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	660	4	--	-
....SCENEDESMUS	--	-	--	-	--	-	37	1	1500	10	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	1300	8	--	-
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	230#	24	--	-	--	-	--	-
..ULOTRICHALES												
...ULOTHRICHACEAE												
....ULOTHRIX	--	-	--	-	--	-	55	1	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	480	14	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	29	3	*	0	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	1400#	43	--	-	*	0	*	0	220	9
....MELOSIRA	--	-	--	-	57	6	--	-	--	-	580#	24
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	*	0	--	-
...CYMBELLACEAE												
....EPITHEMIA	--	-	--	-	29	3	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	29	3	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	57	6	--	-	--	-	--	-
...NAVICULACEAE												
....CALONEIS	--	-	--	-	29	3	--	-	--	-	--	-
....NAVICULA	--	-	--	-	57	6	--	-	*	0	--	-
....PINNULARIA	--	-	--	-	--	-	*	0	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	14	2	480	14	57	6	83	2	110	1	--	-
...SURIRELLACEAE												
....SURIRELLA	14	2	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	57	1	--	-	--	-
....COCCOCHLORIS	--	-	--	-	--	-	--	-	110	1	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	340#	36	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	3700#	25	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	820#	97	--	-	--	-	3300#	85	3500#	24	1500#	61
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	*	0	--	-
....PHACUS	--	-	--	-	--	-	--	-	*	0	--	-
....TRACHELOMONAS	--	-	480	14	29	3	*	0	*	0	150	6

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06354000 CANNONBALL RIVER AT BREIEN, ND--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PERIPHYTON

Date	Length of exposure (days)	Biomass (µg/m²)		Chlorophyll a (µg/m²)	Chlorophyll b (µg/m²)	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
Jan. 27	31	157	0.000	0.000	0.000	--	Polyethylene strip

06354500 BEAVER CREEK AT LINTON, ND

LOCATION.--Lat 46°15'27", long 100°13'58", on line between secs.17 and 18, T.132 N., R.76 W., Emmons County, Hydrologic Unit 10130104, on left bank 60 ft (18 m) downstream from bridge on U.S. Highway 83, 0.7 mi (1.1 km) south of railway station in Linton, and 1 mi (2 km) upstream from Spring Creek.

DRAINAGE AREA.--717 mi² (1,[illegible]²), of which about 100 mi² (260 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1949 to current year.

REVISED RECORDS.--WSP 1209: Drainage area. WSP 1239: 1950(M).

GAGE.--Water-stage recorder. Datum of gage is 1,690.55 ft (515.280 m) National Geodetic Vertical Datum of 1929. Prior to June 18, 1958, nonrecording gage at site 60 ft (18 m) upstream at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--29 years, 41.7 ft³/s (1.181 m³/s), 30,210 acre-ft/yr (37.2 hm³/yr); median of yearly mean discharges, 27 ft³/s (0.76 m³/s), 19,600 acre-ft/yr (24 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,800 ft³/s (278 m³/s) Apr. 8, 1952, gage height, 17.50 ft (5.334 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	2300	*6,300	178	a*16.96	5.169	Jul. 10	0230	290	8.21	9.26	2.822
Jul. 3	0600	250	7.08	8.88	2.707						

Minimum daily discharge, 0.46 ft³/s (0.013 m³/s) Sept. 10.

a - From graph based on gage readings.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	3.7	3.8	2.5	1.6	1.1	2830	76	21	153	21	3.7
2	5.4	3.4	3.8	2.5	1.6	1.1	1920	73	19	153	21	3.6
3	4.7	3.3	3.7	2.5	1.6	1.1	1060	70	19	204	21	3.3
4	3.8	3.3	3.7	2.5	1.6	1.1	626	66	19	128	20	3.3
5	3.2	3.3	3.7	2.5	1.6	1.1	444	62	18	88	20	3.2
6	2.8	3.3	3.7	2.4	1.6	1.1	391	58	16	69	18	2.6
7	4.5	3.3	3.7	2.4	1.6	1.1	363	59	17	56	17	2.3
8	6.2	3.5	3.7	2.4	1.6	1.2	305	69	18	48	15	1.2
9	12	3.8	3.7	2.4	1.6	1.3	250	68	18	106	14	.78
10	6.9	3.8	3.7	2.4	1.6	1.5	213	70	17	179	13	.46
11	6.2	3.9	3.7	2.3	1.6	1.7	192	74	19	87	11	1.5
12	6.9	4.0	3.7	2.3	1.4	1.8	175	85	20	59	9.4	3.7
13	6.9	3.9	3.7	2.3	1.4	1.8	159	80	20	56	8.4	4.0
14	6.5	3.9	3.6	2.3	1.4	1.7	146	81	20	70	6.2	60
15	9.4	3.9	3.4	2.2	1.4	1.7	131	86	20	58	16	57
16	11	3.9	3.4	2.2	1.4	1.6	123	76	22	49	15	40
17	10	3.8	3.4	2.2	1.4	1.5	116	63	25	42	12	27
18	12	3.8	3.4	2.1	1.4	2.0	119	55	90	38	10	23
19	13	3.8	3.4	2.1	1.4	2.5	114	53	56	38	8.7	22
20	5.9	3.8	3.4	2.0	1.4	3.0	114	47	55	37	7.5	23
21	5.9	3.8	3.4	1.9	1.4	15	111	42	51	36	6.5	18
22	5.1	3.8	3.4	1.8	1.4	30	102	41	40	35	5.7	18
23	4.7	3.8	3.4	1.8	1.4	220	97	42	33	33	5.1	16
24	4.7	3.8	3.4	1.8	1.3	500	94	41	30	32	4.6	14
25	4.7	3.8	3.3	1.7	1.3	560	95	37	30	30	4.3	9.9
26	4.5	3.8	3.2	1.7	1.1	850	101	32	34	28	4.0	4.9
27	4.9	3.8	3.1	1.7	1.1	1790	98	28	29	26	4.2	2.3
28	3.7	3.8	3.0	1.7	1.1	2660	90	26	28	25	4.2	1.8
29	3.4	3.8	2.8	1.7	---	3970	83	24	36	24	3.6	1.2
30	3.6	3.8	2.6	1.7	---	4630	78	23	86	22	3.6	.78
31	3.6	---	2.5	1.7	---	2920	---	22	---	20	3.7	---
TOTAL	194.1	111.4	106.4	65.7	40.3	18176.0	10740	1729	926	2029	333.7	372.52
MEAN	6.26	3.71	3.43	2.12	1.44	586	358	55.8	30.9	65.5	10.8	12.4
MAX	13	4.0	3.8	2.5	1.6	4630	2830	86	90	204	21	60
MIN	2.8	3.3	2.5	1.7	1.1	1.1	78	22	16	20	3.6	.46
AC-FT	385	221	211	130	80	36050	21300	3430	1840	4020	662	739

CAL YR 1977 TOTAL 6864.73 MEAN 18.8 MAX 955 MIN .00 AC-FT 13620
WTR YR 1978 TOTAL 34824.12 MEAN 95.4 MAX 4630 MIN .46 AC-FT 69070

06354500 BEAVER CREEK AT LINTON, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commision.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
NOV								
03...	1000	3.2	1010	8.1	5.5	330	0	77
DEC								
13...	1130	3.7	1100	8.0	.0	400	18	91
JAN								
13...	1100	2.3	1200	7.7	.0	440	34	100
FEB								
10...	1000	1.6	1240	7.8	.0	450	36	110
MAR								
02...	1400	1.1	1040	7.8	.0	430	51	100
20...	1230	3.0	950	--	.5	--	--	--
22...	1400	31	640	--	1.0	--	--	--
25...	1440	539	200	--	.5	--	--	--
27...	1115	1950	130	--	.5	--	--	--
29...	1220	314	150	--	1.0	--	--	--
APR								
03...	1530	1003	370	7.9	3.0	90	0	20
MAY								
04...	1030	65	790	8.5	13.0	280	0	64
JUN								
06...	1150	15	910	8.3	20.0	330	0	73
22...	1410	33	460	--	21.5	--	--	--
AUG								
10...	1120	12	865	8.1	22.0	280	0	66
SEP								
12...	1040	5.3	795	--	20.5	--	--	--
12...	1100	5.3	795	8.1	20.5	280	0	64

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
NOV									
03...	33	100	39	2.4	12	386	10	333	5.2
DEC									
13...	42	120	38	2.6	14	466	0	382	7.5
JAN									
13...	46	130	38	2.7	14	494	0	405	16
FEB									
10...	43	120	36	2.5	13	507	0	416	13
MAR									
02...	44	100	35	2.1	11	463	0	380	12
20...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
APR									
03...	9.7	24	34	1.1	7.9	131	0	107	2.6
MAY									
04...	29	87	39	2.3	11	360	0	295	1.8
JUN									
06...	36	100	38	2.4	15	439	0	360	3.5
22...	--	--	--	--	--	--	--	--	--
AUG									
10...	28	86	39	2.2	11	406	8	346	5.4
SEP									
12...	--	--	--	--	--	--	--	--	--
12...	29	75	36	2.0	11	354	0	290	4.5

06354500 BEAVER CREEK AT LINTON, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV								
03...	220	8.8	.2	10	632	662	.86	5.46
DEC								
13...	270	9.7	.0	17	807	794	1.10	8.06
JAN								
13...	300	11	.2	19	895	864	1.22	5.56
FEB								
10...	280	12	.2	26	866	855	1.18	3.74
MAR								
02...	280	9.1	.0	23	815	797	1.11	2.42
20...	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
APR								
03...	37	4.4	.1	8.4	162	176	.22	439
MAY								
04...	180	7.9	.2	11	575	568	.78	101
JUN								
06...	190	8.1	.2	7.5	660	647	.90	27.8
22...	--	--	--	--	--	--	--	--
AUG								
10...	130	9.9	.2	16	558	555	.76	18.8
SEP								
12...	--	--	--	--	--	--	--	--
12...	140	10	.2	12	532	516	.72	4.74

DATE	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
NOV			
03...	190	40	240
DEC			
13...	380	80	310
JAN			
13...	520	0	410
FEB			
10...	290	20	540
MAR			
02...	1000	80	480
APR			
03...	180	80	140
MAY			
04...	0	160	20
JUN			
06...	640	380	150
AUG			
10...	70	80	240
SEP			
12...	30	60	420

DATE	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
JUN										
06...	--	--	--	--	--	--	--	--	--	--
22...	5	7	9	32	5	61	82	92	96	100
AUG										
10...	--	--	--	--	--	--	--	--	--	--
SEP										
12...	--	--	--	--	--	--	--	--	--	--

06354825 ONE-MILE CREEK NEAR FORT YATES, ND

LOCATION.--Lat 46°03'56", long 100°40'10", in NE¼NE¼SE¼ sec.22, T.130 N., R.80 W., Sioux County, Hydrologic Unit 10130102, on left bank at upstream end of bridge on North Dakota State Highway 24 0.9 mi (1.5 km) above mouth, and 2.2 mi (3.5 km) southwest of Fort Yates.

DRAINAGE AREA.--10.5 mi² (27.2 km²).

PERIOD OF RECORD.--March 1978 to September 1979.

GAGE.--Non-recording gage. Altitude of gage is 1,650 ft (503 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 276 ft³/s (7.82 m³/s) Mar. 21; maximum gage height, 8.0 ft (2.44 m); minimum daily, 0.01 ft³/s (0.0002 m³/s) Aug. 8-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	.00	15	.90	.90	.14	.05	.17
2					---	.00	8.0	.90	.43	.14	.05	.14
3					---	.00	2.0	.90	.25	.11	.05	.07
4					---	.00	1.4	.90	.20	.11	.03	.07
5					---	.00	2.0	.90	.20	.30	.03	.05
6					---	.00	4.0	.90	.14	.50	.03	.05
7					---	.01	6.8	1.0	.14	.43	.03	.05
8					---	.05	8.8	5.9	.14	.43	.01	.05
9					---	.20	6.8	2.8	.14	.09	.01	.05
10					---	.50	4.5	1.2	.20	.09	.01	.05
11					---	1.0	2.8	.90	.20	.07	.01	.09
12					---	1.0	2.0	89	.58	.07	.01	.17
13					---	2.0	1.2	3.3	.74	.07	.01	.17
14					---	2.0	1.8	.90	11	.09	.09	.11
15					---	3.0	2.8	.90	24	.09	99	.03
16					---	3.0	4.2	.90	62	.09	87	.03
17					---	3.0	5.1	.90	24	.11	4.8	.17
18					---	4.0	5.9	.90	2.3	.14	.30	.11
19					---	4.0	5.9	3.3	.90	.11	.20	.07
20					---	4.7	5.1	2.0	.74	.30	.09	.07
21					---	200	4.5	.90	.74	.43	.09	.07
22					---	130	4.2	.90	.74	.20	.20	.07
23					---	90	3.6	.58	.90	.09	.50	.07
24					---	56	3.0	.20	1.5	.07	.17	.03
25					---	60	2.8	.20	1.2	.07	.11	.03
26					---	65	2.0	.20	4.5	.05	.17	.03
27					---	70	1.2	.17	2.8	.05	.07	.03
28					.00	100	1.2	.17	1.5	.05	.07	.03
29					---	160	1.0	.17	1.0	.09	.25	.03
30					---	38	1.0	.25	.74	.09	.17	.03
31					---	20	---	6.8	---	.05	.17	---
TOTAL					---	1017.46	120.6	129.84	144.82	4.72	193.78	2.19
MEAN					---	32.8	4.02	4.19	4.83	.15	6.25	.073
MAX					---	200	15	89	62	.50	99	.17
MIN					---	.00	1.0	.17	.14	.05	.01	.03
AC-FT					---	2020	239	258	287	9.4	384	4.3

06354988 BOWMAN-HALEY LAKE NEAR HALEY, ND

LOCATION.--Lat 45°59'06", long 103°14'43", in NE¼ sec.24, T.129 N., R.101 W., Bowman County, at dam on North Fork Grand River, and 6 mi (10 km) west of Haley.

DRAINAGE AREA.--446 mi^2 (1,155 km^2), approximately.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by a rolled earth-fill dam; storage began Aug. 22, 1966; dam completed April 1967. Total capacity is 93,000 acre-ft (115 hm^3) at maximum pool, elevation, 2,777.0 ft (846.430 m). Dead storage is 4,280 acre-ft (5.28 hm^3) below lowest point of outlet, elevation, 2,740.0 ft (835.152 m). Normal operating storage is 20,100 acre-ft (24.8 hm^3) at elevation 2,755.0 ft (839.724 m), crest of spillway. Figures given herein represent total contents. Controlled releases are through a 30-inch (0.762 m) or 8-inch (0.203 m) gate valve. The spillway is uncontrolled "glory hole" type and discharges through a conduit 9 ft (2.743 m) in diameter. The reservoir is for flood control, water supply, and recreation.

COOPERATION.--Records of elevations and contents furnished by Corps of Engineers from capacity table dated August 1966. Elevations affected by wind.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 37,540 acre-ft (46.3 hm^3) Mar. 13, 1972, elevation, 2,762.66 ft (842.059 m); minimum since first reaching spillway level, 16,500 acre-ft (20.3 hm^3) Mar. 8-10, 1975, elevation, 2,752.78 ft (839.047 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,540 acre-ft (46.3 hm^3) June 20, elevation, 2,762.66 ft (842.059 m); minimum, 17,660 acre-ft (21.8 hm^3) Oct. 1, elevation, 2,753.53 ft (839.276 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,753.48	17,590	--
Oct. 31	2,753.92	18,280	+690
Nov. 30	2,753.89	18,240	-40
Dec. 31	2,754.00	18,410	+170
CAL YR 1977	--	--	+1,520
Jan. 31	2,754.00*	18,410	0
Feb. 28	2,754.17	18,700	+290
Mar. 31	2,760.27	31,280	+12,580
Apr. 30	2,755.31	20,690	-10,590
May 31	2,755.44	20,930	+240
June 30	2,755.12	20,340	-590
July 31	2,754.85	19,870	-470
Aug. 31	2,754.49	19,250	-620
Sept. 30	2,754.12	18,620	-630
WTR YR 1978	--	--	+1,030

* Estimated.

06355000 NORTH FORK GRAND RIVER AT HALEY, ND

LOCATION.--Lat 45°57'39", long 103°07'09", at southwest corner of sec.30, T.129 N., R.99 W., Bowman County, Hydrologic Unit 10130301, on left bank 10 ft (3 m) downstream from county highway bridge, 300 ft (91 m) south of post office at Haley, and 1 mi (1.6 km) north of South Dakota state line.

DRAINAGE AREA.--509 mi² (1,318 km²).

PERIOD OF RECORD.--May 1908 to September 1917, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1239: 1908-10, 1913-15(M), 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 2,658.60 ft (810.341 m) National Geodetic Vertical Datum of 1929. Oct. 23, 1945, to June 18, 1951, nonrecording gage on downstream side of bridge near left abutment at present datum. See WSP 1729 or 1917 for history of changes prior to Oct. 23, 1945.

REMARKS.--Records good except those for the winter period, which are fair. Flow regulated since August 1966 by Bowman-Haley Lake (station 06354988) 8 mi (13 km) upstream.

AVERAGE DISCHARGE.--42 years, 29.0 ft³/s (0.821 m³/s), 21,010 acre-ft/yr (26.0 hm³/yr); median of yearly mean discharges, 22 ft³/s (0.62 m³/s), 15,900 acre-ft/yr (20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s (399 m³/s) Apr. 7, 1952, gage height, 17.03 ft (5.191 m), from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of discharge measurement at gage height, 15.09 ft (4.599 m), half of which was indirect measurement of flow over roadway outside of main channel; maximum gage height, 17.10 ft (5.212 m) Apr. 15, 1950; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,500 ft³/s (71 m³/s) Mar. 27, gage height, 13.77 ft (4.197 m); minimum daily, 0.35 ft³/s (0.010 m³/s) Feb. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	1.4	1.6	.85	.40	1.5	1930	40	62	21	4.2	1.7
2	2.3	1.4	1.8	.85	.40	1.2	1530	37	69	21	3.8	1.6
3	1.7	1.4	1.8	.80	.40	1.0	1040	36	76	19	4.4	1.8
4	1.4	1.4	1.7	.80	.40	1.0	804	38	79	18	4.1	1.4
5	1.3	1.4	1.7	.80	.40	1.0	627	38	74	17	2.9	1.3
6	1.3	1.4	1.6	.80	.40	1.0	515	37	71	16	2.7	1.1
7	1.8	1.4	1.6	.80	.40	1.0	421	43	70	16	2.6	1.1
8	2.1	1.3	1.0	.80	.40	1.0	354	59	65	14	2.4	1.1
9	1.7	1.1	.90	.80	.40	1.5	306	99	58	14	2.4	1.1
10	1.4	1.2	.80	.80	.40	2.0	248	149	53	11	2.4	1.1
11	1.3	1.2	.80	.80	.40	2.0	193	161	50	10	2.3	1.4
12	1.6	1.1	.90	.80	.40	2.0	197	152	49	11	2.2	1.9
13	1.5	1.2	.90	.70	.40	2.5	151	133	41	16	2.1	1.8
14	1.4	1.2	1.0	.70	.40	2.5	127	118	38	9.7	2.1	2.0
15	1.2	1.2	1.0	.70	.40	2.5	114	105	36	8.1	2.0	2.2
16	1.2	1.2	1.0	.70	.40	3.0	103	94	36	7.1	2.4	2.0
17	1.3	1.4	1.0	.60	.40	3.0	94	84	35	5.7	2.2	1.9
18	1.3	1.3	.95	.50	.35	3.0	94	74	33	6.7	2.1	1.9
19	1.3	1.3	.95	.50	.40	3.5	86	67	31	7.5	2.8	2.1
20	1.3	1.0	.95	.50	.40	4.0	85	55	34	7.8	2.5	3.7
21	1.4	.90	.95	.50	.50	4.5	83	53	24	6.9	2.0	2.2
22	1.4	.90	.95	.50	.50	8.0	84	50	22	7.4	1.9	1.8
23	1.4	.90	.90	.50	.60	10	81	46	20	7.5	1.9	1.6
24	1.4	.90	.90	.50	.60	40	73	43	19	7.5	1.9	1.5
25	1.4	.90	.90	.50	.80	310	63	40	26	7.7	1.7	.91
26	1.3	.90	.90	.40	.80	770	58	32	26	6.9	1.7	1.1
27	1.3	.80	.90	.40	1.0	1950	53	32	26	5.3	2.1	1.4
28	1.3	.90	.90	.40	2.0	2250	49	29	21	4.9	2.3	1.4
29	1.4	1.0	.85	.40	---	2200	46	26	22	6.2	2.0	1.4
30	1.5	1.4	.85	.40	---	2160	43	33	23	4.9	1.8	1.4
31	1.5	---	.85	.40	---	2130	---	50	---	3.9	1.7	---
TOTAL	46.3	35.00	33.80	19.50	14.75	11872.7	9652	2053	1289	325.7	75.6	48.91
MEAN	1.49	1.17	1.09	.63	.53	383	322	66.2	43.0	10.5	2.44	1.63
MAX	2.6	1.4	1.8	.85	2.0	2250	1930	161	79	21	4.4	3.7
MIN	1.2	.80	.80	.40	.35	1.0	43	26	19	3.9	1.7	.91
AC-FT	92	69	67	39	29	23550	19140	4070	2560	646	150	97

CAL YR 1977 TOTAL 886.13 MEAN 2.43 MAX 22 MIN .03 AC-FT 1760
WTR YR 1978 TOTAL 25466.26 MEAN 69.8 MAX 2250 MIN .35 AC-FT 50510

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND

LOCATION.--Lat 46°06'40", long 103°02'20", in SE¼NE¼ sec.3, T.130 N., R.99 W., Bowman County, on left bank 46 ft (14 m) downstream from Chicago, Milwaukee, St. Paul, Pacific Railway bridge, and 1.8 mi (2.9 km) east of Gascoyne.

DRAINAGE AREA.--15.7 mi² (40.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR ND-76-1: 1975.

GAGE.--Water-stage recorder. Altitude of gage is 2,725 ft (831 m), from topographic map.

REMARKS.--Records fair. Some regulation by strip mine above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100 ft³/s (2.83 m³/s) May 9, 1975, gage height, 8.41 ft (2.563 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86 ft³/s (2.44 m³/s) Mar. 21, gage height, 8.39 ft (2.557 m), backwater from ice; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	.38	.30	.00	.00	.00	8.0	1.5	5.6	1.1	.35	.04
2	8.4	.63	.30	.00	.00	.00	4.1	1.7	3.2	1.0	.40	.04
3	2.4	10	.25	.00	.00	.00	5.9	2.0	1.5	.95	.25	.04
4	1.3	11	.25	.00	.00	.00	8.0	9.6	.87	.90	.20	.03
5	.60	5.4	.20	.00	.00	.00	6.8	7.2	1.0	.75	.35	.02
6	.63	.75	.20	.00	.00	.00	4.6	2.9	.50	1.3	.40	.03
7	9.1	.92	.15	.00	.00	.00	3.5	13	.30	1.5	.30	.03
8	9.9	.83	.10	.00	.00	.00	2.4	28	.00	1.3	.20	.00
9	5.4	.79	.05	.00	.00	.00	2.2	11	.55	1.0	.35	.00
10	2.1	.75	.00	.00	.00	.00	1.6	4.6	2.4	.85	.00	.00
11	.83	.52	.00	.00	.00	.00	1.1	3.0	2.2	.75	.00	.13
12	.75	.34	.00	.00	.00	.00	.96	5.2	2.0	1.6	.00	.37
13	.63	.52	.00	.00	.00	.00	.65	4.0	1.8	1.2	.00	.13
14	.52	.66	.00	.00	.00	.00	.94	2.4	1.7	.90	.00	.08
15	.44	.99	.00	.00	.00	.00	1.5	1.7	2.2	.75	.00	.05
16	.42	.47	.00	.00	.00	.00	3.2	3.2	3.4	.70	.00	.03
17	.35	.28	.00	.00	.00	.00	2.7	3.0	2.2	.70	.00	.01
18	.40	.21	.00	.00	.00	5.0	4.9	3.1	1.7	.85	.00	.04
19	.57	.20	.00	.00	.00	10	5.7	5.1	1.5	2.4	.00	.04
20	.57	.20	.00	.00	.00	30	3.0	5.7	1.4	1.4	.00	.04
21	.57	.15	.00	.00	.00	80	1.9	4.0	1.7	1.4	.00	.03
22	.45	.15	.00	.00	.00	70	3.7	2.6	1.3	1.0	.00	.08
23	.40	.15	.00	.00	.00	50	7.2	2.2	1.1	.65	.00	.11
24	.40	.10	.00	.00	.00	40	3.4	1.3	.90	.50	.00	.11
25	.47	.10	.00	.00	.00	50	2.2	1.4	1.4	.35	.00	.11
26	.69	.10	.00	.00	.00	40	6.8	1.5	1.7	.50	.00	.11
27	8.2	.10	.00	.00	.00	35	6.1	1.2	.80	.45	.00	.09
28	8.6	.15	.00	.00	.00	32	2.6	.78	1.2	.50	.20	.09
29	2.4	.20	.00	.00	---	19	2.6	.36	1.2	.45	.08	.09
30	.72	.25	.00	.00	---	24	2.1	4.8	1.2	.40	.07	.09
31	.35	---	.00	.00	---	17	---	4.1	---	.35	.04	---
TOTAL	83.56	37.29	1.80	.00	.00	502.00	110.35	142.14	48.52	28.45	3.19	2.06
MEAN	2.70	1.24	.058	.000	.000	16.2	3.68	4.59	1.62	.92	.10	.069
MAX	15	11	.30	.00	.00	80	8.0	28	5.6	2.4	.40	.37
MIN	.35	.10	.00	.00	.00	.00	.65	.36	.00	.35	.00	.00
AC-FT	166	74	3.6	.00	.00	996	219	282	96	56	6.3	4.1

CAL YR 1977 TOTAL 391.93 MEAN 1.07 MAX 18 MIN .00 AC-FT 777
WTR YR 1978 TOTAL 959.36 MEAN 2.63 MAX 80 MIN .00 AC-FT 1900

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 04...	1120	.64	3350	8.1	8.0	8.4	78	1.2	770	410	110
NOV 01...	1120	.44	4530	8.1	5.0	9.6	83	.7	960	430	120
DEC 06...	1050	.17	5000	7.8	.0	3.8	29	--	1200	530	180
MAR 21...	1830	86	730	--	1.0	--	--	--	--	--	--
23...	1805	47	555	--	.0	--	--	--	--	--	--
25...	1405	31	900	--	3.0	--	--	--	--	--	--
28...	1740	26	1120	--	3.0	--	--	--	--	--	--
30...	1510	22	1260	--	11.0	--	--	--	--	--	--
APR 06...	1405	4.6	1690	8.7	10.5	8.8	87	1.5	460	260	75
MAY 03...	1040	1.3	4000	8.1	11.5	--	--	--	1000	580	150
31...	1340	3.1	5400	8.3	10.0	9.0	88	1.9	1100	630	77
JUN 27...	1245	1.4	6000	8.3	22.0	6.0	75	2.7	1200	760	89
AUG 02...	1125	.42	4250	8.1	18.0	7.0	81	--	700	170	100

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT 04...	120	580	62	9.1	14	440	0	360	5.6	1600
NOV 01...	160	830	65	12	12	640	0	530	8.1	2100
DEC 06...	190	1000	63	12	17	860	0	710	22	2600
APR 06...	65	240	53	4.9	11	240	0	200	.8	730
MAY 03...	160	680	58	9.2	16	550	0	450	7.0	1900
31...	210	840	63	11	15	520	0	430	4.2	2300
JUN 27...	230	900	62	11	17	500	0	410	4.0	2600
AUG 02...	110	750	69	12	14	650	0	530	8.3	1700

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 04...	9.7	.7	8.4	2710	2900	2660	3.69	4.6	60	.12
NOV 01...	11	.9	5.7	3700	--	3560	5.03	4.4	--	.04
DEC 06...	14	.6	13	4480	--	4450	6.09	2.0	--	.18
MAR 21...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
APR 06...	4.8	.3	7.6	1260	--	1250	1.71	15.7	--	.47
MAY 03...	9.3	.7	.5	3180	--	3190	4.32	11.2	--	.02
31...	8.4	.6	5.3	4110	--	3720	5.59	34.4	--	.10
JUN 27...	19	.7	6.3	4480	--	4110	6.09	16.9	--	.00
AUG 02...	12	.9	3.7	3140	--	3010	4.27	3.5	--	.08

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT							
04...	1.1	.13	.97	1.2	5.4	.11	.05
NOV							
01...	.88	.22	.66	.92	4.1	.06	.02
DEC							
06...	.92	.00	.99	1.1	4.9	.06	.03
APR							
06...	.84	.30	.54	1.3	5.8	.11	.06
MAY							
03...	1.4	.74	.66	1.4	6.3	.04	.02
31...	1.5	.10	1.4	1.6	7.1	.06	.01
JUN							
27...	2.3	.50	1.8	2.3	10	.04	.03
AUG							
02...	1.1	.30	.80	1.2	5.2	.10	.06

DATE	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)
OCT							
04...	--	--	--	--	--	--	--
NOV							
01...	--	--	--	--	--	--	--
DEC							
06...	30	2	100	2800	0	0	5
APR							
06...	--	--	--	--	--	--	--
MAY							
03...	--	--	--	--	--	--	--
31...	90	2	100	2700	0	0	4
JUN							
27...	--	--	--	--	--	--	--
AUG							
02...	--	--	--	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)
OCT										
04...	--	--	--	--	--	--	--	--	--	73
NOV										
01...	--	--	--	--	--	--	--	--	--	--
DEC										
06...	110	2	110	360	.0	1	0	4600	30	--
APR										
06...	--	--	--	--	--	--	--	--	--	--
MAY										
03...	--	--	--	--	--	--	--	--	--	--
31...	110	0	100	80	.0	4	1	3200	20	--
JUN										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
02...	--	--	--	--	--	--	--	--	--	--

06355310 BUFFALO CREEK TRIBUTARY NEAR GASCOYNE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT									
04...	6.0	64	38	51	34	.13	66	17	2.7
NOV									
01...	--	--	--	--	--	--	--	19	3.0
DEC									
06...	--	--	--	--	--	--	--	34	--
APR									
06...	--	--	--	--	--	--	--	13	--
MAY									
03...	--	--	--	--	--	--	--	22	1.6
31...	--	--	--	--	--	--	--	32	--
JUN									
27...	--	--	--	--	--	--	--	51	--
AUG									
02...	--	--	--	--	--	--	--	22	.9

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT		
04...	2	.00
NOV		
01...	92	.11
APR		
06...	117	1.5
MAY		
03...	38	.13
31...	12	.10
JUN		
27...	26	.10
AUG		
02...	39	.04

06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi (9.7 km) northwest of Pierre, 7.1 mi (11.4 km) upstream from Bad River, and at mile 1,072.3 (1,725.3 km).

DRAINAGE AREA.--243,500 mi² (630,700 km²), approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1959, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,630,000 acre-ft (29,100 hm³) below elevation 1,620.0 ft (493.78 m), top of spillway gates. Normal maximum, 22,530,000 acre-ft (27,800 hm³) below 1,617.0 ft (492.86 m), of which about 2,390,000 acre-ft (2,950 hm³) is designated for flood control. Inactive storage, 5,538,000 acre-ft (6,830 hm³) below elevation 1,540.0 ft (469.39 m). Dead storage, 2,000 acre-ft (2.47 hm³) below elevation 1,425.0 ft (434.34 m), invert of lowest outlet tunnel. Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft (486.61 m), 8 gates, 50 by 23.5 ft (15.2 x 7.2 m) each; design capacity, 300,000 ft³/s (8,500 m³/s). The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,681,000 acre-ft (28,000 hm³) Aug. 22, 1975, elevation, 1,617.9 ft (493.14 m), affected by wind; minimum since initial filling, 16,131,000 acre-ft (19,900 hm³) Sept. 30, 1977, elevation, 1,596.9 ft (486.74 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,969,000 acre-ft (27,100 hm³) May 31, elevation, 1,615.7 ft (492.47 m); maximum elevation, 1,615.9 ft (492.53 m) June 6, 19, July 9; minimum contents, 15,112,000 acre-ft (18,600 hm³) Dec. 10-12, 14, elevation, 1,593.0 ft (485.55 m), affected by ice.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,596.9	16,131,000	--
Oct. 31	1,595.4	15,768,000	-363,000
Nov. 30	1,594.5	15,431,000	-337,000
Dec. 31	1,594.8	15,560,000	+129,000
CAL YR 1977	--	--	-2,550,000
Jan. 31	1,596.9	16,128,000	+568,000
Feb. 28	1,600.7	17,211,000	+1,083,000
Mar. 31	1,610.3	20,126,000	+2,915,000
Apr. 30	1,614.7	21,621,000	+1,495,000
May 31	1,615.7	21,969,000	+348,000
June 30	1,615.4	21,833,000	-136,000
July 31	1,615.0	21,755,000	-78,000
Aug. 31	1,613.4	21,239,000	-516,000
Sept. 30	1,610.4	20,208,000	-1,031,000
WTR YR 1978	--	--	+4,077,000

Note.--Reservoir frozen over Jan. 3 to Apr. 7.

06467600 JAMES RIVER NEAR MANFRED, ND

LOCATION.--Lat 47°38'40", long 99°49'40", near midpoint of north line sec.15, T.148 N., R.72 W., Wells County, Hydrologic Unit 10160001, on right upstream wingwall of bridge on county highway, and 5 mi (8 km) southwest of Manfred.

DRAINAGE AREA.--253 mi² (655 km²), of which about 197 mi² (510 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1954 to August 1957 (annual maximum only), September 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,605.73 ft (489.427 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 16, 1957, crest-stage gage only on downstream side of bridge at same datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--21 years (1957-78), 2.89 ft³/s (0.0818 m³/s), 2,090 acre-ft/yr (2.58 hm³/yr); median of yearly mean discharges, 2.5 ft³/s (0.071 m³/s), 1,800 acre-ft/yr (2.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s (25.5 m³/s) Apr. 10, 1969, gage height, 7.70 ft (2.347 m); no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	*300	8.50	a*6.60	2.012	Mar. 26	--	200	5.66	4.86	1.481

No flow for several months.

a - Backwater from ice

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.28	.10	.09	.00	.00	71	2.9	1.4	.18	.01	.00
2	1.3	.26	.10	.09	.00	.00	58	2.6	1.3	.16	.01	.00
3	.82	.24	.10	.09	.00	.00	50	2.4	1.3	.14	.00	.00
4	.50	.23	.10	.09	.00	.00	40	2.2	1.2	.32	.00	.00
5	.26	.22	.10	.09	.00	.00	35	2.1	1.0	.54	.00	.00
6	.20	.20	.10	.09	.00	.00	32	2.0	.86	.54	.00	.00
7	.35	.19	.10	.09	.00	.00	43	2.4	.78	.62	.00	.00
8	1.0	.18	.10	.09	.00	.00	33	6.8	.62	1.0	.00	.00
9	1.3	.17	.10	.07	.00	.00	26	8.5	.54	1.7	.00	.00
10	1.1	.16	.10	.05	.00	.00	21	7.0	.46	2.0	.00	.00
11	.90	.15	.10	.05	.00	.00	16	5.3	.50	1.9	.00	.00
12	.74	.15	.10	.05	.00	.00	14	4.6	.78	1.4	.00	.00
13	.54	.14	.10	.05	.00	.00	12	4.0	.78	1.0	.00	.00
14	.42	.13	.10	.03	.00	.00	10	3.5	.66	.90	.00	.00
15	.42	.12	.10	.01	.00	.00	8.7	3.0	.62	.58	.00	.00
16	.46	.12	.10	.00	.00	.00	7.6	2.6	.78	.42	.00	.00
17	.46	.11	.10	.00	.00	.00	6.4	2.3	.74	.29	.00	.00
18	.46	.11	.10	.00	.00	.00	5.7	2.0	.66	.20	.00	.00
19	.46	.10	.10	.00	.00	.00	5.1	2.0	.62	.20	.00	.00
20	.46	.10	.10	.00	.00	.00	4.7	2.2	.58	.18	.00	.00
21	.42	.10	.10	.00	.00	.00	4.2	2.0	.54	.12	.00	.00
22	.35	.10	.10	.00	.00	150	3.8	1.8	.42	.10	.00	.00
23	.38	.10	.10	.00	.00	200	4.4	1.7	.38	.09	.00	.00
24	.38	.10	.10	.00	.00	130	5.3	1.6	.35	.08	.00	.00
25	.38	.10	.10	.00	.00	100	5.6	1.6	.32	.07	.00	.00
26	.35	.10	.10	.00	.00	150	4.8	1.7	.29	.06	.00	.00
27	.32	.10	.10	.00	.00	180	4.2	1.6	.24	.05	.00	.00
28	.32	.10	.10	.00	.00	140	3.7	1.4	.20	.04	.00	.00
29	.32	.10	.10	.00	---	112	3.8	1.2	.18	.03	.00	.00
30	.32	.10	.10	.00	---	100	3.2	1.0	.18	.03	.00	.00
31	.32	---	.10	.00	---	77	---	1.1	---	.02	.00	---
TOTAL	17.81	4.36	3.10	1.03	.00	1339.00	542.2	87.1	19.28	14.96	.02	.00
MEAN	.57	.15	.10	.033	.000	43.2	18.1	2.81	.64	.48	.001	.000
MAX	1.8	.28	.10	.09	.00	200	71	8.5	1.4	2.0	.01	.00
MIN	.20	.10	.10	.00	.00	.00	3.2	1.0	.18	.02	.00	.00
AC-FT	35	8.6	6.1	2.0	.00	2660	1080	173	38	30	.04	.00

CAL YR 1977 TOTAL 133.52 MEAN .37 MAX 22 MIN .00 AC-FT 265
WTR YR 1978 TOTAL 2028.86 MEAN 5.56 MAX 200 MIN .00 AC-FT 4020

06468170 JAMES RIVER NEAR GRACE CITY, ND

LOCATION.--Lat 47°33'29", long 98°51'45", in NW¼NW¼NW¼ sec.17, T.147 N., R.64 W., Foster County, Hydrologic Unit 10160001, on left bank on downstream side of county highway bridge, and 2.5 mi (4.0 km) northwest of Grace City.

DRAINAGE AREA.--1,060 mi² (2,750 km²), approximately, of which about 650 mi² (1,680 km²) is probably noncontributing.

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,457.60 ft (444.276 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--10 years, 25.7 ft³/s (0.728 m³/s), 18,620 acre-ft/yr (23.0 hm³/yr); median of yearly mean discharges, 17 ft³/s (0.48 m³/s), 12,300 acre-ft/yr (15 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s (87.8 m³/s) Apr. 13, 1969, gage height, 12.00 ft (3.658 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,050 ft³/s (29.7 m³/s) Mar. 31, gage height, 10.37 ft (3.161 m), backwater from ice; only peak above base of 200 ft³/s (5.66 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.10	.30	.14	.03	.00	580	22	2.6	.27	.06	.02
2	.10	.10	.20	.14	.02	.00	430	20	2.8	.24	.04	.01
3	.10	.10	.15	.14	.02	.00	410	18	1.9	.18	.04	.01
4	.10	.10	.13	.13	.01	.00	352	16	1.6	.25	.03	.01
5	.09	.10	.12	.13	.01	.00	336	14	1.2	.27	.02	.01
6	.08	.10	.11	.12	.00	.00	271	14	.91	.23	.02	.00
7	.11	.10	.11	.11	.00	.00	261	13	.54	.20	.01	.00
8	.14	.12	.11	.11	.00	.00	221	13	.45	.24	.00	.00
9	.15	.11	.11	.11	.00	.00	204	14	.57	.26	.00	.00
10	.15	.11	.11	.11	.00	.00	199	12	.47	.34	.00	.00
11	.13	.11	.11	.10	.00	.00	180	9.9	.35	.47	.00	.01
12	.13	.11	.12	.10	.00	.00	152	9.3	.36	.40	.00	.07
13	.13	.12	.13	.10	.00	.00	163	9.3	.36	.26	.00	.06
14	.11	.11	.13	.10	.00	.00	138	9.4	.43	.30	.00	.06
15	.11	.11	.14	.10	.00	.00	117	10	.48	.26	.00	.05
16	.13	.12	.14	.10	.00	.00	99	9.6	.72	.24	.00	.04
17	.12	.11	.14	.09	.00	.00	109	6.4	.54	.22	.00	.03
18	.12	.11	.14	.09	.00	.00	115	5.1	.40	.16	.00	.03
19	.11	.11	.14	.08	.00	.00	97	4.8	.30	.21	.00	.05
20	.10	.12	.14	.08	.00	.00	82	4.6	.20	.22	.00	.04
21	.09	.11	.14	.07	.00	.00	76	4.6	.14	.22	.00	.03
22	.10	.11	.14	.07	.00	.00	84	4.6	.13	.22	.00	.03
23	.10	.11	.14	.07	.00	.00	100	4.2	.13	.20	.00	.03
24	.10	.11	.14	.06	.00	.00	80	4.1	.11	.20	.01	.02
25	.10	.11	.14	.05	.00	.00	68	3.7	.14	.17	.01	.02
26	.10	.11	.14	.05	.00	15	58	2.7	.20	.12	.06	.02
27	.10	.11	.14	.05	.00	25	49	2.4	.21	.10	.05	.02
28	.10	.15	.14	.04	.00	30	37	2.5	.22	.11	.04	.02
29	.10	.25	.14	.04	---	50	24	2.1	.23	.07	.02	.02
30	.10	.36	.14	.04	---	100	25	2.3	.25	.08	.02	.03
31	.10	---	.14	.03	---	880	---	3.0	---	.06	.02	---
TOTAL	3.42	3.70	4.32	2.75	.09	1100.00	5116	270.6	18.94	6.77	.45	.74
MEAN	.11	.12	.14	.089	.003	35.5	171	8.73	.63	.22	.015	.025
MAX	.15	.36	.30	.14	.03	880	580	22	2.8	.47	.06	.07
MIN	.08	.10	.11	.03	.00	.00	25	2.1	.11	.06	.00	.00
AC-FT	6.8	7.3	8.6	5.5	.2	2180	10150	537	38	13	.9	1.5

CAL YR 1977 TOTAL 89.71 MEAN .25 MAX 6.3 MIN .00 AC-FT 178
WTR YR 1978 TOTAL 6527.78 MEAN 17.9 MAX 880 MIN .00 AC-FT 12950

06469000 JAMESTOWN RESERVOIR NEAR JAMESTOWN, ND

LOCATION.--Lat 46°55'50", long 98°42'23", in SE¼NW¼ sec.24, T.140 N., R.64 W., Stutsman County, Hydrologic Unit 10160001, on left bank in control house below Jamestown Dam on James River, 1.7 mi (2.7 km) north of Jamestown Post Office, and 3.3 mi (5.3 km) upstream from Pipestem Creek.

DRAINAGE AREA.--1,760 mi² (4,560 km²), approximately, of which about 1,010 mi² (2,620 km²) is probably noncontributing.

PERIOD OF RECORD.--November 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.720 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. June 22, 1959 to June 3, 1971 at site 0.2 mi (0.3 km) upstream at same datum. Prior to June 22, 1959, nonrecording gages at different locations.

REMARKS.--Reservoir is formed by earth-fill dam, completed Oct. 1, 1953. Closure made May 7, 1953, and filling of dead storage started. Gates initially closed Feb. 8, 1954. Usable capacity, 229,470 acre-ft (283 hm³) between elevations 1,400 ft (426.720 m), sill of outlet and 1,454 ft (443.179 m), crest of spillway. Dead storage below elevation 1,400 ft (426.720 m), 820 acre-ft (1.01 hm³). Maximum design pool, 389,000 acre-ft (480 hm³), elevation, 1,464.6 ft (446.410 m). Figures given herein represent total contents based on capacity table dated Oct. 1, 1965. Reservoir is used for flood control and municipal supply. Elevations are adjusted for wind effect.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,100 acre-ft (127 hm³) May 1, 1969, elevation, 1,443.60 ft (440.009 m); minimum since initial filling of reservoir, 18,220 acre-ft (22.5 hm³) Mar. 4, 5, 1965, elevation, 1,423.66 ft (433.932 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,080 acre-ft (45.7 hm³) May 13, elevation, 1,433.26 ft (436.858 m); minimum, 26,260 acre-ft (32.4 hm³) Mar. 8, elevation, 1,428.47 ft (435.398 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,428.77	26,830	-
Oct. 31	1,428.67	26,640	-190
Nov. 30	1,428.70	26,700	+60
Dec. 31	1,428.70	26,700	0
CAL YR 1977	--	--	-760
Jan. 31	1,428.58*	26,470	-230
Feb. 28	1,428.50	26,320	-150
Mar. 31	1,430.18	29,710	+3,390
Apr. 30	1,432.84	35,970	+6,260
May 31	1,432.80	35,870	-100
June 30	1,432.98	36,320	+450
July 31	1,432.40	34,860	-1,460
Aug. 31	1,431.47	32,610	-2,250
Sept. 30	1,429.75	28,810	-3,800
WTR YR 1978	--	--	+1,980

* Estimated

06469400 PIPESTEM CREEK NEAR PINGREE, ND

LOCATION.--Lat 47°10'03", long 98°58'07", in NE¼NE¼NW¼ sec.31, T.143 N., R.65 W., Stutsman County, Hydrologic Unit 10160002, on right bank on downstream side of State Highway 36 bridge, and 3 mi (5 km) west of Pingree.

DRAINAGE AREA.--700 mi^2 (1,810 km^2), of which about 440 mi^2 (1,140 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,500.63 ft (457.392 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--5 years, 20.5 ft^3/s (0.581 m^3/s), 14,850 acre-ft/yr (18.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft^3/s (68.0 m^3/s) Apr. 19, 1975, gage height, 11.47 ft (3.496 m), backwater from ice; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 22	--	350	9.91	Backwater from ice		Mar. 28	1730	*690	19.5	*9.20	2.804

No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	372	15	3.2	.38	.04	.00
2	.00	.05	.00	.00	.00	.00	300	12	3.1	.34	.04	.00
3	.00	.01	.00	.00	.00	.00	263	9.1	2.7	.30	.02	.00
4	.00	.00	.00	.00	.00	.00	239	9.2	2.5	.27	.04	.00
5	.00	.00	.00	.00	.00	.00	214	8.6	1.9	.26	.04	.00
6	.05	.00	.00	.00	.00	.00	193	7.4	1.4	.24	.04	.05
7	.01	.00	.00	.00	.00	.00	173	6.9	1.5	.18	.04	.01
8	.00	.00	.00	.00	.00	.00	158	12	1.6	.27	.02	.00
9	.00	.00	.00	.00	.00	.00	140	14	1.4	.34	.04	.00
10	.00	.00	.00	.00	.00	5.0	122	14	1.2	.30	.06	.00
11	.00	.00	.00	.00	.00	30	104	16	1.2	.27	.04	.00
12	.00	.00	.00	.00	.00	50	90	13	1.1	.27	.04	.00
13	.00	.00	.00	.00	.00	30	77	14	1.0	.24	.04	.00
14	.00	.00	.00	.00	.00	20	69	11	.67	.21	.06	.00
15	.00	.00	.00	.00	.00	15	62	8.4	.82	.24	.08	.00
16	.00	.00	.00	.00	.00	10	54	6.4	6.9	.24	.08	.00
17	.00	.00	.00	.00	.00	10	46	5.8	10	.21	.06	.00
18	.00	.00	.00	.00	.00	10	43	5.5	2.1	.21	.04	.00
19	.00	.00	.00	.00	.00	50	37	5.5	1.3	.34	.02	.00
20	.00	.00	.00	.00	.00	120	32	5.3	.93	.16	.04	.00
21	.00	.00	.00	.00	.00	170	30	4.3	.89	.16	.04	.00
22	.00	.00	.00	.00	.00	320	28	4.2	.55	.14	.04	.00
23	.00	.00	.00	.00	.00	240	28	4.2	.46	.14	.00	.00
24	.00	.00	.00	.00	.00	190	28	3.8	.46	.12	.00	.00
25	.00	.00	.00	.00	.00	280	25	3.7	.65	.12	.00	.00
26	.00	.00	.00	.00	.00	430	25	3.7	.60	.10	.00	.00
27	.00	.00	.00	.00	.00	436	24	3.7	.55	.10	.00	.00
28	.00	.00	.00	.00	.00	605	22	3.5	.50	.08	.00	.00
29	.00	.00	.00	.00	---	590	20	3.5	.46	.06	.00	.00
30	.00	.00	.00	.00	---	493	17	3.1	.42	.04	.00	.00
31	.00	---	.00	.00	---	423	---	2.9	---	.02	.00	---
TOTAL	.06	.06	.00	.00	.00	4527.00	3035	239.7	52.06	6.35	.96	.06
MEAN	.002	.002	.000	.000	.000	146	101	7.73	1.74	.20	.031	.002
MAX	.05	.05	.00	.00	.00	605	372	16	10	.38	.08	.05
MIN	.00	.00	.00	.00	.00	.00	17	2.9	.42	.02	.00	.00
AC-FT	.1	.1	.00	.00	.00	8980	6020	475	103	13	1.9	.1

CAL YR 1977 TOTAL 12.72 MEAN .035 MAX .42 MIN .00 AC-FT 25
WTR YR 1978 TOTAL 7861.25 MEAN 21.5 MAX 605 MIN .00 AC-FT 15590

06470000 JAMES RIVER AT JAMESTOWN, ND

LOCATION.--Lat 46°53'22", long 98°40'58", in NW¼NE¼ sec.6, T.139 N., R.63 W., Stutsman County, Hydrologic Unit 10160003, on left bank 200 ft (60 m) upstream from Interstate 94 bridge at southeast corner of Jamestown, and 3 mi (5 km) downstream from Pipestem Creek.

DRAINAGE AREA.--2,820 mi^2 (7,300 km^2), approximately, of which about 1,650 mi^2 (4,270 km^2) is probably noncontributing.

PERIOD OF RECORD.--June 1928 to September 1934, March to May 1935, August 1937 to September 1939, March 1943 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1239: 1938(M). WSP 1917: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,373.27 ft (418.573 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1949 to Sept. 30, 1965, at former bridge 0.5 mi (0.8 km) upstream at datum 2.00 ft (0.610 m) higher. See WSP 1729 or 1917 for history of changes prior to Oct. 1, 1949.

REMARKS.--Records fair. Flow regulated by Arrowwood, Jim, and Pipestem Lakes, and Jamestown Reservoir, combined capacity, 393,000 acre-ft (485 hm^3). Regulation by Jamestown Reservoir (station 06469000) 6 mi (10 km) upstream since 1953 and by Pipestem Lake, capacity 147,000 acre-ft (181 hm^3), since 1973.

AVERAGE DISCHARGE.--43 years (water years 1929-34, 1938-39, 1944-78), 57.0 ft^3/s (1.614 m^3/s), 41,300 acre-ft/yr (50.9 hm^3/yr); median of yearly mean discharges, 25 ft^3/s (0.71 m^3/s), 18,100 acre-ft/yr (22 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,390 ft^3/s (181 m^3/s) May 13, 1950, gage height, 15.82 ft (4.822 m), site and datum then in use; no flow at times in 1933.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 330 ft^3/s (9.35 m^3/s) Mar. 22, gage height, 8.65 ft (2.637 m), backwater from ice; minimum daily, 1.1 ft^3/s (0.031 m^3/s) Mar. 3, 4, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	4.3	3.9	2.9	2.0	1.5	143	57	142	172	88	21
2	4.2	4.2	4.0	2.9	2.1	1.2	141	57	131	158	86	21
3	3.7	4.2	3.8	2.9	2.1	1.1	139	77	130	132	84	25
4	2.4	4.2	3.8	2.8	2.1	1.1	139	175	138	110	83	26
5	3.6	4.2	3.8	3.0	2.1	1.6	149	178	137	83	83	21
6	3.7	4.3	3.7	2.9	2.4	1.4	149	176	143	108	83	18
7	10	4.2	3.7	2.8	2.3	1.1	87	197	144	257	84	18
8	9.3	9.7	3.7	2.7	2.2	1.8	78	192	149	104	84	12
9	6.1	7.5	3.8	2.7	2.1	2.8	72	180	145	97	80	24
10	4.6	5.5	3.8	2.5	2.1	16	71	179	141	84	66	35
11	4.0	4.3	3.8	2.7	2.1	18	73	178	149	89	53	25
12	3.8	3.8	3.8	2.6	2.1	45	73	198	155	88	44	24
13	3.7	3.6	3.8	2.5	2.2	35	72	180	156	86	38	19
14	3.6	3.6	3.7	2.5	2.2	34	73	175	155	102	46	18
15	3.6	3.5	3.7	2.3	2.2	31	72	174	127	101	70	16
16	3.4	3.5	3.5	2.2	2.0	21	73	172	221	98	33	13
17	3.4	3.6	3.5	2.1	2.0	11	72	163	166	95	31	14
18	3.7	3.5	3.5	2.1	1.8	19	72	163	166	93	29	63
19	3.9	3.6	3.4	1.8	1.7	122	70	173	169	137	27	282
20	4.0	3.6	3.4	1.8	1.7	159	71	162	170	97	26	300
21	4.1	3.6	3.4	2.0	1.8	180	70	156	160	96	24	296
22	4.2	3.6	3.3	1.9	1.9	320	72	166	140	92	26	198
23	4.2	3.6	3.3	1.8	2.5	240	76	153	150	92	37	16
24	4.2	3.7	3.2	1.8	2.6	160	71	149	160	91	26	3.4
25	4.0	3.8	3.2	1.8	2.2	130	63	148	153	90	24	2.3
26	4.2	3.8	3.2	1.8	2.1	101	62	154	142	87	23	2.1
27	4.0	3.9	3.1	1.8	1.9	86	60	143	140	87	23	1.9
28	4.0	3.9	3.1	1.8	1.5	74	61	142	160	86	22	1.7
29	4.2	3.9	3.1	1.9	---	63	61	141	180	90	21	1.4
30	4.2	3.9	3.0	1.9	---	70	60	140	178	94	21	1.3
31	4.2	---	3.0	2.0	---	147	---	144	---	88	21	---
TOTAL	134.4	126.6	109.0	71.2	58.0	2095.6	2545	4842	4597	3284	1486	1519.1
MEAN	4.34	4.22	3.52	2.30	2.07	67.6	84.8	156	153	106	47.9	50.6
MAX	10	9.7	4.0	3.0	2.6	320	149	198	221	257	88	300
MIN	2.4	3.5	3.0	1.8	1.5	1.1	60	57	127	83	21	1.3
AC-FT	267	251	216	141	115	4160	5050	9600	9120	6510	2950	3010

CAL YR 1977 TOTAL 1549.3 MEAN 4.24 MAX 53 MIN 1.6 AC-FT 3070
WTR YR 1978 TOTAL 20867.9 MEAN 57.2 MAX 320 MIN 1.1 AC-FT 41390

06470500 JAMES RIVER AT LA MOURE, ND

LOCATION.--Lat 46°21'20", long 98°18'15", in NE¼NE¼ sec.11, T.133 N., R.61 W., LaMoure County, Hydrologic Unit 10160003, on left bank 80 ft (24 m) downstream from bridge on State Highway 13, 0.5 mi (0.8 km) west of LaMoure, and 12 mi (19 km) upstream from Cottonwood Creek.

DRAINAGE AREA.--4,390 mi² (11,370 km²), approximately, of which about 2,600 mi² (6,730 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -April to July 1903 (gage-height record only), April 1950 to current year. Gage-height records for 1902-11 are contained in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 1917: Drainage area.

GAGE.--Water-stage recorder and rubble-masonry control. Datum of gage is 1,290.00 ft (393.192 m) above mean sea level. See WSP 1729 or 1917 for history of changes prior to Apr. 19, 1950.

REMARKS.--Records good. Flow regulated by Arrowwood, Jim, and Pipestem Lakes, and Jamestown Reservoir, combined capacity, 393,000 acre-ft (485 hm³). Regulation by Jamestown Reservoir (station 06469000) 85 mi (137 km) upstream since 1953 and by Pipestem Lake, capacity 147,000 acre-ft (181 hm³), since 1973.

AVERAGE DISCHARGE.--28 years (water years 1951-78), 87.9 ft³/s (2.489 m³/s), 63,680 acre-ft/yr (78.5 hm³/yr); median of yearly mean discharges, 60 ft³/s (1.70 m³/s), 43,500 acre-ft/yr (54 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft³/s (193 m³/s) Apr. 14, 1969, gage height, 16.17 ft (4.929 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Prior to flood of Apr. 14, 1969, a long-time resident said that the flood of May 16, 1950 was the highest since 1881, with stage in either 1942 or 1943 being almost as high owing to large ice jam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,700 ft³/s (48.1 m³/s) Mar. 26, gage height, 13.74 ft (4.188 m), backwater from ice; minimum, 1.8 ft³/s (0.51 m³/s) Nov. 10, gage height, 6.91 ft (2.106 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	22	9.2	6.9	5.5	5.0	658	122	224	189	105	29
2	34	14	9.2	6.8	5.5	5.0	562	114	197	261	115	26
3	26	13	9.2	6.5	5.5	5.0	520	114	198	316	103	20
4	35	6.6	9.2	6.4	5.5	5.0	432	115	190	230	98	22
5	24	4.6	9.2	6.2	5.5	5.0	366	104	173	200	99	23
6	17	4.6	9.2	6.0	5.4	5.0	366	123	169	165	91	19
7	29	5.0	9.2	5.8	5.4	5.0	338	188	169	156	95	24
8	31	5.0	9.2	5.8	5.4	5.0	355	234	165	141	92	18
9	23	5.0	9.2	5.6	5.3	5.0	344	222	152	191	85	24
10	28	2.7	9.2	5.6	5.3	5.0	278	244	177	233	81	16
11	34	5.5	9.2	5.5	5.3	5.0	245	251	164	174	82	34
12	26	7.2	9.4	5.5	5.3	5.0	245	255	165	159	79	80
13	32	7.2	9.2	5.5	5.3	5.0	200	254	153	119	58	138
14	34	8.5	9.4	5.5	5.3	5.0	190	258	164	120	65	71
15	31	14	9.2	5.5	5.3	5.0	182	250	170	113	65	44
16	28	15	9.0	5.5	5.2	5.0	164	242	298	109	62	44
17	51	15	8.8	5.5	5.2	5.2	164	245	466	119	62	36
18	25	14	8.6	5.5	5.2	6.0	172	231	358	112	67	36
19	25	14	8.4	5.5	5.2	15	150	233	455	110	44	42
20	34	13	8.2	5.5	5.2	25	134	206	432	103	34	35
21	27	13	8.0	5.5	5.1	300	126	206	340	117	36	74
22	22	12	7.8	5.5	5.1	600	122	240	283	131	29	225
23	22	11	7.6	5.5	5.1	900	142	242	243	116	40	293
24	24	11	7.4	5.5	5.1	1100	130	256	187	106	34	295
25	22	11	7.2	5.5	5.1	1500	134	266	164	109	50	207
26	22	9.7	7.0	3.2	5.0	1700	134	255	205	106	55	100
27	23	9.5	7.0	3.0	5.0	1650	130	237	217	98	45	44
28	18	9.2	7.0	3.2	5.0	1550	134	228	175	104	34	31
29	17	9.2	7.0	4.0	---	1450	130	233	152	92	28	31
30	23	9.2	7.0	4.5	---	1300	126	241	148	95	23	21
31	29	---	7.0	5.0	---	1140	---	224	---	98	23	---
TOTAL	854	300.7	261.4	167.0	147.3	13321.2	7373	6633	6753	4492	1979	2102
MEAN	27.5	10.0	8.43	5.39	5.26	430	246	214	225	145	63.8	70.1
MAX	51	22	9.4	6.9	5.5	1700	658	266	466	316	115	295
MIN	17	2.7	7.0	3.0	5.0	5.0	122	104	148	92	23	16
AC-FT	1690	596	518	331	292	26420	14620	13160	13390	8910	3930	4170

CAL YR 1977 TOTAL 6621.5 MEAN 18.1 MAX 137 MIN 2.7 AC-FT 13130
WTR YR 1978 TOTAL 44383.6 MEAN 122 MAX 1700 MIN 2.7 AC-FT 88030

06470500 JAMES RIVER AT LA MOURE, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1953 to September 1975, October 1976 to current year.
SPECIFIC CONDUCTANCE: October 1976 to current year.

INSTRUMENTATION.--Temperature recorder from June 1953 to September 1975, November 1976 to current year.

REMARKS.--In addition to continuous temperature recorder, samples were collected by a local observer on an approximate daily basis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 33.0°C July 12, 13, 1957; July 23, 1977; minimum, 0.0°C on many days during winter months.
SPECIFIC CONDUCTANCE: Maximum daily, 1,790 micromhos Dec. 16, 1976; minimum daily, 200 micromhos Mar. 24, 25, and 26, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 31.0°C July 17; minimum, 0.0°C on many days during winter months.
SPECIFIC CONDUCTANCE: Maximum daily, 1,600 micromhos Feb. 6 and 7; minimum daily, 200 micromhos Mar. 24, 25, and 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXYGEN, DISSOLVED (MG/L) (00300)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 05...	1000	44	975	8.1	7.5	50	9.0	290	9	67
NOV 01...	1050	55	840	8.2	7.5	30	6.9	310	49	72
DEC 06...	1630	18	1240	7.8	.0	12	5.2	430	65	98
JAN 11...	1500	10	1310	7.3	.0	9	2.1	610	100	140
FEB 07...	1235	10	1720	6.6	.0	27	--	680	97	160
MAR 08...	1115	9.0	1350	7.4	.0	65	.8	530	59	130
29...	1320	1460	285	7.7	1.0	70	10.7	100	13	25
APR 11...	1610	242	540	8.0	8.5	35	10.6	230	53	54
MAY 02...	1800	111	720	8.5	16.0	17	11.2	320	74	77
JUN 01...	1732	204	680	8.4	15.0	20	10.2	280	35	60
JUL 13...	1520	132	600	8.5	24.5	20	--	260	54	61
AUG 02...	1320	130	660	8.1	21.0	25	8.1	250	28	57
SEP 08...	1430	2.4	835	8.5	24.0	12	7.7	320	58	77

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT 05...	29	110	44	2.8	12	340	0	280	4.3
NOV 01...	32	66	31	1.6	9.2	320	0	260	3.2
DEC 06...	44	120	37	2.5	12	440	0	360	11
JAN 11...	62	150	35	2.7	12	610	0	500	49
FEB 07...	68	170	35	2.8	16	710	0	580	285
MAR 08...	51	140	36	2.6	10	580	0	480	37
29...	10	13	20	.6	8.0	110	0	90	3.5
APR 11...	22	32	23	.9	9.7	210	0	170	3.4
MAY 02...	31	54	26	1.3	10	290	5	250	1.5
JUN 01...	31	58	30	1.5	11	290	3	240	1.9
JUL 13...	26	41	25	1.1	11	250	0	210	1.3
AUG 02...	26	45	27	1.2	12	270	0	220	3.4
SEP 08...	30	72	32	1.8	12	290	12	260	1.6

06470500 JAMES RIVER AT LA MOURE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT 05...	190	50	.4	21	634	649	.86	76.5	.05
NOV 01...	150	36	.1	20	562	544	.76	53.1	.06
DEC 06...	270	62	2.0	19	811	846	1.10	41.4	.32
JAN 11...	310	71	.4	34	1070	1060	1.46	30.3	.40
FEB 07...	330	110	.4	38	1240	1240	1.69	35.8	.20
MAR 08...	280	70	.4	31	975	1000	1.33	25.8	.40
29...	40	5.8	.1	8.2	160	168	.22	631	.76
APR 11...	100	13	.1	13	351	350	.48	229	.51
MAY 02...	140	17	.2	8.7	489	486	.67	147	.04
JUN 01...	120	21	.2	12	467	460	.64	257	.14
JUL 13...	110	23	.1	16	411	412	.56	146	.00
AUG 02...	110	19	.2	13	433	415	.59	152	.00
SEP 08...	150	33	.2	14	546	544	.74	3.58	.03

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 05...	.09	30	4	500	400	0	0	0	1
NOV 01...	.04	--	--	--	230	--	--	--	--
DEC 06...	.14	--	--	--	400	--	--	--	--
JAN 11...	.22	--	--	--	430	--	--	--	--
FEB 07...	.28	--	--	--	580	--	--	--	--
MAR 08...	.25	--	--	--	420	--	--	--	--
29...	.15	--	--	--	70	--	--	--	--
APR 11...	.14	10	3	0	110	0	0	0	0
MAY 02...	.07	--	--	--	170	--	--	--	--
JUN 01...	.12	--	--	--	160	--	--	--	--
JUL 13...	.09	--	--	--	160	--	--	--	--
AUG 02...	.05	--	--	--	170	--	--	--	--
SEP 08...	.00	--	--	--	250	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT 05...	20	1	70	120	.0	2	3	0	380	.0	10	.00
APR 11...	50	--	30	120	.0	0	1	0	230	.0	0	.00

06470500 JAMES RIVER AT LA MOURE, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)
NOV							
01...	77	7.5	--	--	--	--	--
DEC							
06...	22	1.1	--	--	--	--	--
JAN							
11...	35	.99	--	--	--	--	--
FEB							
07...	18	.52	--	--	--	--	--
MAR							
08...	30	.79	--	--	--	--	--
29...	75	288	--	--	--	--	--
APR							
11...	102	67	--	--	--	--	--
MAY							
02...	10	3.0	--	--	--	--	--
JUN							
01...	33	18	--	--	--	--	--
22...	--	--	--	6	18	23	25
JUL							
13...	43	15	--	--	--	--	--
AUG							
02...	96	34	99	--	--	--	--
SEP							
08...	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
JUN						
01...	--	--	--	--	--	--
22...	3	24	37	50	76	100

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Oct. 4, 1977		
1800	10.7	10.5
1900	10.4	--
2000	10.1	--
2100	9.8	--
2200	9.4	--
2300	9.1	--
2400	8.8	10.0
Oct. 5, 1977		
0100	8.6	--
0200	8.6	--
0300	8.6	--
0400	8.6	--
0500	8.4	--
0600	8.4	--
0700	8.3	7.0
0800	8.5	--
0900	8.8	--
1000	9.3	--
1100	9.8	7.5
1200	10.2	--
1300	10.5	--
1400	11.1	--
1500	11.6	--
1600	11.4	--
1700	11.7	--
1800	11.8	--
Jan. 10, 1978		
1600	2.2	.0
1700	2.1	.0
1800	2.1	.0
1900	2.0	.0
2000	2.0	.0
2100	2.0	.0
2200	2.1	.0
2300	2.0	.0
2400	2.0	0.0
Jan. 11, 1978		
0100	2.1	.0
0200	2.1	.0
0300	2.1	.0
0400	2.1	.0
0500	2.1	.0
0600	2.1	.0
0700	2.1	.0
0800	2.1	.0
0900	2.1	.0
1000	2.1	.0
1100	2.1	.0
1200	2.1	.0
1300	2.1	.0
1400	2.1	.0
1500	2.1	.0
1600	2.2	.0
Apr. 11, 1978		
1500	10.6	8.5
1600	10.6	--
1700	10.6	8.5
1800	10.5	--
1900	10.5	--
2000	10.4	--
2100	10.4	--
2200	10.4	--
2300	10.2	7.5
2400	10.2	--
Apr. 12, 1978		
0100	10.2	--
0200	10.2	--
0300	10.1	--
0400	10.2	--
0500	10.2	--
0600	10.3	6.5
0700	10.5	--
0800	10.5	--
0900	10.6	--
1000	10.8	--
1100	10.8	--
1200	11.0	6.0
1300	11.0	--
1400	11.0	--
1500	11.0	6.0
Jul. 12, 1978		
1600	9.3	25.0
1700	9.4	25.0
1800	9.5	--
1900	9.5	--
2000	9.3	--
2100	9.1	--
2200	8.3	23.0
2300	8.1	--
2400	7.8	--
July 13, 1978		
0100	7.5	--
0200	7.2	--
0300	6.8	--
0400	6.5	--
0500	6.2	20.5
0600	6.1	--
0700	6.0	--
0800	6.0	--
0900	6.3	--
1000	6.7	--
1100	7.1	22.5
1200	7.6	--
1300	8.1	--
1400	8.8	--
1500	9.4	--
1600	9.8	24.5

06470500 JAMES RIVER AT LA MOURE, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	905	870	1100	1330	1530	1400	250	745	890	500	580	760
2	905	890	1200	1380	1550	1380	300	745	750	490	580	750
3	900	890	1200	1400	1550	1350	360	750	750	510	590	760
4	850	900	1230	1350	1550	1330	420	750	750	520	600	800
5	880	900	1250	1300	1500	1300	450	700	750	520	600	800
6	860	920	1250	1330	1600	1280	400	650	750	530	600	860
7	830	940	1200	1350	1600	1250	500	670	750	540	620	800
8	850	950	1220	1350	1550	1250	540	645	750	550	635	820
9	835	900	1300	1400	1530	1210	550	690	730	550	650	840
10	840	880	1300	1430	1500	1200	560	640	690	550	665	820
11	820	900	1310	1450	1550	1190	580	670	675	550	685	800
12	810	950	1310	1400	1530	1160	605	650	500	600	690	780
13	810	960	1320	1400	1520	1000	615	650	450	600	700	760
14	850	1000	1310	1500	1500	800	635	660	430	600	700	730
15	830	1000	1300	1500	1500	1000	630	675	400	600	700	730
16	850	1000	1300	1500	1500	1000	650	680	400	575	700	730
17	830	1010	1200	1500	1480	1020	650	700	400	560	680	780
18	810	1030	1100	1500	1450	900	630	700	400	570	690	840
19	810	1050	1200	1500	1400	700	600	700	400	590	700	790
20	820	1050	1250	1500	1400	590	675	700	400	600	710	600
21	810	1080	1250	1500	1400	380	720	700	400	600	680	540
22	820	1100	1200	1500	1390	400	730	700	400	600	690	530
23	830	1120	1200	1500	1390	220	730	700	470	600	700	550
24	840	1130	1200	1500	1380	200	725	700	510	600	700	600
25	830	1150	1150	1500	1380	200	725	740	540	600	710	620
26	830	1160	1150	1500	1390	200	720	780	550	620	740	650
27	830	1180	1150	1520	1400	250	720	800	570	630	750	700
28	830	1200	1200	1520	1400	240	725	800	560	640	750	710
29	830	1200	1200	1520	---	240	725	800	580	650	750	720
30	840	1150	1250	1520	---	240	730	810	530	650	760	730
31	850	---	1300	1530	---	300	---	820	---	650	760	---
MEAN	843	1010	1240	1460	1480	812	600	716	572	579	680	728

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	10.0	1.0	1.0	.0	---	2.0	9.0	18.0	25.5	27.0	28.0
2	11.5	10.0	1.0	1.0	.0	---	4.0	10.0	17.5	25.5	26.5	26.0
3	12.0	9.5	1.0	1.0	.0	---	5.0	10.0	17.0	27.0	27.0	22.5
4	12.5	9.0	1.0	.5	.0	---	7.0	10.0	20.0	29.0	28.0	23.0
5	12.0	10.0	.5	.5	.0	---	7.0	11.0	22.0	30.0	26.0	25.0
6	12.0	11.0	.5	.5	.0	.0	7.0	12.0	23.0	29.0	26.0	25.0
7	10.0	11.0	.5	.5	.0	1.0	7.0	12.0	23.0	27.0	25.0	25.0
8	7.0	9.0	.5	.5	.0	1.5	7.0	12.0	24.0	27.0	26.0	26.0
9	7.0	5.0	.5	.5	.0	2.0	7.0	13.0	24.0	27.0	27.0	26.0
10	7.0	1.0	.5	.5	.0	2.0	7.0	13.0	23.0	27.0	25.0	24.0
11	6.5	1.0	1.0	.5	.0	2.0	6.5	13.0	23.0	27.0	25.0	22.0
12	6.5	1.0	1.0	.5	.0	2.0	6.5	13.0	24.0	27.0	25.0	20.0
13	6.0	3.0	1.0	.5	.0	2.0	7.0	15.0	25.0	27.0	24.0	19.0
14	6.0	4.0	.5	.5	.0	2.0	8.0	15.0	25.0	29.0	24.0	18.0
15	5.5	4.5	.5	.5	.0	2.0	8.5	16.0	24.0	31.0	23.0	17.0
16	5.0	5.0	1.0	.5	.0	2.0	8.5	17.0	24.0	31.0	23.0	17.5
17	6.0	4.5	1.0	.5	.0	2.0	8.5	18.0	23.0	31.0	23.5	16.0
18	6.5	4.5	1.0	.5	.0	2.0	9.0	18.0	22.0	31.0	23.0	14.5
19	7.0	3.0	.5	.5	.0	2.0	9.0	19.0	22.0	29.0	22.0	14.0
20	8.0	2.0	.5	.5	.0	2.0	9.0	22.0	21.0	29.0	21.0	14.0
21	9.0	2.0	.5	.5	.0	2.0	9.5	23.0	21.5	28.0	22.0	14.0
22	10.0	1.0	.5	.5	.0	2.0	10.0	24.0	22.5	27.0	22.0	14.0
23	10.0	1.0	.5	.5	.0	2.0	9.0	24.0	23.0	27.0	22.0	15.0
24	10.0	1.0	.5	.5	.0	2.0	9.0	25.0	24.0	27.0	23.0	15.0
25	11.0	1.0	.5	.5	.0	2.0	9.5	25.0	24.0	27.0	24.0	15.0
26	12.0	1.0	.5	.5	.0	2.0	10.0	24.0	25.0	27.0	25.0	15.0
27	11.5	1.0	.5	.5	.0	2.0	10.0	22.0	25.0	27.0	25.0	15.0
28	11.5	1.5	.5	.5	.0	2.0	9.5	21.5	26.0	26.0	26.0	15.0
29	12.0	1.5	.5	.5	---	1.5	10.0	21.0	26.0	25.0	27.0	15.0
30	12.0	1.0	.5	.5	---	1.5	10.0	21.0	25.5	25.0	29.0	15.0
31	12.0	---	.5	.5	---	1.5	---	19.0	---	25.0	30.0	---
MEAN	9.5	4.5	.5	.5	.0	2.0	8.0	17.0	23.0	27.5	25.0	19.0

06470500 JAMES RIVER AT LA MOURE, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11.0	10.0	11.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0
2	12.0	9.5	10.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0
3	11.0	9.5	8.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0
4	11.0	10.5	8.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0
5	10.5	9.5	8.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0
6	12.0	11.5	9.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0
7	12.0	8.5	9.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0
8	8.5	8.0	9.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0
9	9.0	7.5	5.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0
10	8.5	7.5	1.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
11	7.5	8.0	2.0	1.0	.0	.0	.0	.0	.0	.0	.5	.0
12	9.0	6.5	2.5	1.5	.0	.0	.0	.0	.0	.0	.5	.5
13	10.5	8.0	3.5	2.5	.0	.0	.0	.0	.0	.0	.5	.5
14	10.5	9.5	3.5	3.0	.0	.0	.0	.0	.0	.0	.5	.5
15	10.5	8.0	3.5	2.5	.0	.0	.0	.0	.0	.0	.5	.5
16	10.0	8.5	3.0	2.0	.0	.0	.0	.0	.0	.0	---	---
17	10.0	9.5	3.0	2.0	.0	.0	.0	.0	.0	.0	---	---
18	10.5	9.0	2.0	1.5	.0	.0	.0	.0	.0	.0	---	---
19	10.5	9.5	2.0	1.5	.0	.0	.0	.0	.0	.0	---	---
20	10.5	9.5	1.5	.0	.0	.0	.0	.0	.0	.0	---	---
21	10.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.5	.5
22	10.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.5
23	9.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.5
24	9.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.5
25	10.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	1.0	1.0
26	10.5	9.5	.0	.0	.0	.0	.0	.0	.0	.0	1.0	1.0
27	11.5	10.5	.0	.0	.0	.0	.0	.0	.0	.0	1.5	1.0
28	11.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	1.5
29	11.5	10.0	.0	.0	.0	.0	.0	.0	---	---	1.5	1.5
30	12.5	11.5	.0	.0	.0	.0	.0	.0	---	---	1.5	1.5
31	12.5	11.0	---	---	.0	.0	.0	.0	---	---	1.5	1.5
MONTH	12.5	6.5	11.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	5.0	1.5	16.5	13.0	18.5	16.0	---	---	24.0	22.0	25.0	21.0
2	4.5	4.0	16.5	13.5	17.0	15.0	---	---	22.0	20.5	24.5	22.5
3	4.0	4.0	15.5	14.0	19.5	16.5	---	---	20.5	19.0	24.0	22.5
4	4.5	3.5	15.0	14.0	20.0	18.5	---	---	21.5	18.5	25.0	22.5
5	5.0	4.5	15.0	14.0	22.0	18.5	---	---	24.0	19.5	26.0	24.0
6	8.0	5.0	15.5	14.0	23.0	20.0	---	---	24.0	20.5	25.5	23.5
7	7.5	6.0	15.0	12.5	20.5	19.0	---	---	26.0	22.0	26.0	23.5
8	6.0	5.5	12.5	10.5	20.5	19.0	25.5	23.5	25.0	22.5	25.0	23.5
9	6.5	5.5	13.0	10.0	21.5	19.5	23.5	21.5	25.5	21.5	24.0	22.5
10	6.0	5.5	16.0	12.0	22.5	20.5	23.5	21.5	24.5	22.0	23.5	22.5
11	7.5	5.5	16.5	14.5	22.0	21.0	23.5	21.5	26.0	22.5	24.0	22.5
12	7.5	5.5	16.0	14.0	21.5	20.0	25.5	23.0	26.0	23.5	22.5	20.5
13	6.5	5.0	15.5	13.0	22.5	20.5	28.0	22.5	26.0	25.0	20.5	19.0
14	7.5	6.0	16.5	15.0	25.0	21.5	29.0	24.0	26.0	24.5	19.0	17.0
15	7.5	7.0	17.0	15.0	25.0	23.0	30.5	25.5	25.0	22.5	19.0	16.0
16	8.0	7.0	18.0	16.0	25.0	23.0	30.0	27.0	23.5	21.0	19.0	18.0
17	8.0	7.0	19.0	17.0	23.5	22.5	31.0	27.5	23.0	22.0	18.0	16.0
18	7.0	6.5	19.0	18.0	22.5	21.5	30.5	27.0	22.5	20.5	16.0	15.0
19	6.5	4.0	20.0	17.5	22.5	21.0	29.5	25.5	21.5	19.0	15.0	14.0
20	5.5	3.5	18.0	16.0	21.0	20.5	25.5	24.5	22.0	19.5	15.0	13.5
21	7.5	5.0	19.0	16.5	23.0	20.0	26.5	24.5	23.5	21.0	15.5	13.5
22	8.5	7.5	20.5	18.0	22.0	21.5	24.5	23.5	23.0	20.5	15.5	13.5
23	8.5	7.5	21.5	19.5	24.5	21.5	26.0	23.0	22.5	20.0	15.5	14.0
24	7.5	7.0	22.0	20.5	25.5	23.0	26.5	23.5	23.0	21.5	15.5	14.5
25	9.0	7.0	23.5	21.0	26.0	24.5	29.0	25.0	26.0	23.0	16.5	15.0
26	11.5	9.0	23.5	22.5	25.0	24.0	27.5	25.0	26.0	24.0	16.5	15.5
27	13.0	11.5	22.5	21.0	26.5	23.5	26.5	24.0	26.5	24.0	17.5	15.0
28	13.0	12.5	21.0	20.0	29.0	24.5	25.5	23.5	25.0	22.5	17.0	15.0
29	13.0	12.0	21.0	19.0	---	---	24.0	22.0	23.0	21.0	15.5	14.0
30	15.0	12.5	20.5	20.0	---	---	25.0	21.0	22.0	20.5	16.0	13.0
31	---	---	20.0	18.5	---	---	25.0	21.5	22.5	21.0	---	---
MONTH	15.0	1.5	23.5	10.0	29.0	15.0	31.0	21.0	26.5	18.5	26.0	13.0

06470800 BEAR CREEK NEAR OAKES, ND

LOCATION.--Lat 46°13'31", long 98°04'17", in NE¼NE¼ sec.28, T.132 N., R.59 W., Dickey County, Hydrologic Unit 10160003, on right bank 80 ft downstream from bridge on ND Highway 13, 6 mi (10 km) north, and 1 mi (2 km) east of Oakes.

DRAINAGE AREA.--About 437 mi² (1,132 km²) contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,291.30 ft (393.588 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Record fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 578 ft³/s (16.4 m³/s) Mar. 24, 1978, gage height, 11.06 ft (3.371 m), backwater from ice; no flow for long periods each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1, 1975, reached a stage of 15.00 ft (4.572 m) present datum, from floodmarks, discharge, 4,590 ft³/s (130 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	--	578	16.4	a*11.06	3.371	Sept. 13	--	Unknown		Unknown	

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.03	.00	.00	.00	112	6.0	2.5	5.3	1.4	.00
2	.00	.00	.03	.00	.00	.00	84	5.0	1.8	5.2	1.2	.00
3	.00	.00	.02	.00	.00	.00	74	3.9	1.5	5.1	1.2	.00
4	.00	.00	.01	.00	.00	.00	64	3.4	1.2	5.5	.81	.00
5	.00	.00	.01	.00	.00	.00	60	3.1	.90	5.6	.74	.00
6	.00	.00	.01	.00	.00	.00	56	2.8	.65	5.6	.54	.00
7	.00	.00	.01	.00	.00	.00	52	3.0	.90	5.9	.39	.00
8	.00	.05	.01	.00	.00	.00	56	5.8	.75	5.8	.35	.00
9	.00	.30	.00	.00	.00	.00	55	6.2	.40	5.6	.17	.00
10	.03	.09	.00	.00	.00	.00	46	5.8	.30	5.6	.10	.00
11	.14	.07	.00	.00	.00	.00	44	5.6	.25	8.0	.08	.00
12	.07	.10	.00	.00	.00	.00	40	6.0	.15	12	.05	20
13	.07	.12	.00	.00	.00	.00	37	8.5	.10	11	.03	100
14	.05	.12	.00	.00	.00	.00	32	8.7	.08	9.0	.01	80
15	.03	.14	.00	.00	.00	.00	28	8.2	.09	7.5	.00	60
16	.02	.17	.00	.00	.00	.00	27	8.0	.12	6.5	.00	65
17	.07	.12	.00	.00	.00	.00	22	7.4	.20	5.8	.00	55
18	.00	.09	.00	.00	.00	.00	21	7.0	.18	5.2	.00	50
19	.00	.08	.00	.00	.00	5.0	19	6.5	.15	4.7	.00	42
20	.00	.07	.00	.00	.00	15	14	6.5	.14	4.3	.00	35
21	.00	.06	.00	.00	.00	55	10	6.0	.12	3.9	.00	29
22	.00	.05	.00	.00	.00	280	8.5	5.5	.10	3.7	.00	25
23	.00	.04	.00	.00	.00	550	11	5.0	.10	3.6	.05	21
24	.00	.03	.00	.00	.00	525	13	4.6	.15	3.5	.01	17
25	.00	.01	.00	.00	.00	430	13	5.0	.11	3.3	.00	14
26	.00	.02	.00	.00	.00	510	11	4.6	1.5	3.0	.00	11
27	.00	.03	.00	.00	.00	440	9.5	4.4	1.5	2.8	.00	9.5
28	.00	.05	.00	.00	.00	290	8.7	4.0	1.3	2.6	.00	8.2
29	.00	.05	.00	.00	---	246	8.5	3.6	1.1	2.3	.00	7.6
30	.00	.04	.00	.00	---	173	6.8	3.2	5.5	1.8	.00	7.0
31	.00	---	.00	.00	---	135	---	2.8	---	1.6	.00	---
TOTAL	.48	1.90	.13	.00	.00	3654.00	1043.0	166.1	23.84	161.3	7.13	656.30
MEAN	.015	.063	.004	.000	.000	118	34.8	5.36	.79	5.20	.23	21.9
MAX	.14	.30	.03	.00	.00	550	112	8.7	5.5	12	1.4	100
MIN	.00	.00	.00	.00	.00	.00	6.8	2.8	.08	1.6	.00	.00
AC-FT	1.0	3.8	.3	.00	.00	7250	2070	329	47	320	14	1300

CAL YR 1977 TOTAL 17.70 MEAN .048 MAX 1.3 MIN .00 AC-FT 35
WTR YR 1978 TOTAL 5714.18 MEAN 15.7 MAX 550 MIN .00 AC-FT 11330

06470800 BEAR CREEK NEAR OAKES, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to current year.

REMARKS.--Some chemical data furnished by North Dakota State Water Commission.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
DEC								
06...	1000	.01	1300	7.5	.0	820	450	170
MAR								
21...	1240	51	140	--	.5	--	--	--
23...	1610	542	505	--	1.0	--	--	--
25...	1130	569	215	--	2.0	--	--	--
28...	1730	268	280	7.7	2.0	90	19	20
29...	1600	223	315	--	2.5	--	--	--
APR								
04...	1000	64	455	--	3.0	--	--	--
10...	1330	45	430	8.0	7.5	150	38	36
MAY								
03...	1400	5.7	740	8.0	16.0	280	82	67
JUN								
02...	0944	1.8	830	8.2	14.5	300	70	66
JUL								
12...	1155	11	980	7.8	22.0	290	53	59
AUG								
02...	1900	12	1070	8.0	22.0	330	40	56

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
DEC									
06...	96	110	22	1.7	20	480	0	394	24
MAR									
21...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
28...	9.7	20	30	.9	7.7	87	0	71	2.8
29...	--	--	--	--	--	--	--	--	--
APR									
04...	--	--	--	--	--	--	--	--	--
10...	15	29	28	1.0	9.6	139	0	114	2.2
MAY									
03...	27	59	30	1.5	15	239	0	196	3.8
JUN									
02...	33	82	36	2.1	15	281	0	230	2.8
JUL									
12...	35	110	44	2.8	14	291	0	239	7.4
AUG									
02...	46	120	43	2.9	17	352	0	289	5.6

06470800 BEAR CREEK NEAR OAKES, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
DEC								
06...	610	51	.0	20	1370	1320	1.86	.04
MAR								
21...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
28...	51	12	.1	7.3	167	172	.23	121
29...	--	--	--	--	--	--	--	--
APR								
04...	--	--	--	--	--	--	--	--
10...	88	16	.1	18	278	280	.38	33.8
MAY								
03...	170	30	.1	7.9	507	495	.69	5.06
JUN								
02...	200	43	.2	6.4	586	585	.80	2.85
JUL								
12...	200	60	.3	11	680	633	.92	21.7
AUG								
02...	210	63	.2	16	746	703	1.01	24.2

DATE	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
DEC			
06...	380	160	5200
MAR			
28...	950	380	160
APR			
10...	230	40	10
MAY			
03...	490	320	90
JUN			
02...	590	430	120
JUL			
12...	90	120	340
AUG			
02...	160	400	410

JAMES RIVER BASIN

06470833 PILOT DRAIN AT OAKES, ND

LOCATION.--Lat 46°07'30", long 98°05'49", in SW¼SE¼ sec.29, T.131 N., R.59 W., Dickey County, Hydrologic Unit 10160003, and on left bank 1 mi (2 km) southwest of Oakes.

DRAINAGE AREA.--5.1 mi² (13.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,294.94 ft (394.698 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Records good. The flow is primarily due to ground water.

AVERAGE DISCHARGE.--7 years, 1.13 ft³/s (0.0320 m³/s), 819 acre-ft/yr (1.01 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 8.0 ft³/s (0.23 m³/s) June 29, 1975, gage height, 2.20 ft (0.671 m), estimated; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.2 ft³/s (0.062 m³/s) Apr. 21, gage height, 1.80 ft (0.549 m), no flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.40	1.2	1.5	1.5	.76	.11
2	.00	.00	.00	.00	.00	.00	.60	1.1	1.5	1.5	.73	.11
3	.00	.00	.00	.00	.00	.00	.73	1.1	1.5	1.5	.73	.11
4	.00	.00	.00	.00	.00	.00	.65	1.1	1.5	1.5	.65	.11
5	.00	.00	.00	.00	.00	.00	.58	1.1	1.5	1.5	.65	.11
6	.00	.00	.00	.00	.00	.00	.58	1.1	1.6	1.5	.65	.11
7	.00	.00	.00	.00	.00	.00	.58	1.1	1.5	1.6	.64	.11
8	.00	.00	.00	.00	.00	.00	.51	1.1	1.5	1.5	.54	.07
9	.00	.00	.00	.00	.00	.00	.51	1.1	1.5	1.5	.51	.04
10	.00	.00	.00	.00	.00	.00	.44	1.1	1.5	1.4	.51	.04
11	.00	.00	.00	.00	.00	.00	.38	1.0	1.5	1.4	.51	.10
12	.00	.00	.00	.00	.00	.00	.38	1.1	1.4	1.3	.51	.12
13	.00	.00	.00	.00	.00	.00	.38	1.1	1.4	1.3	.51	.11
14	.00	.00	.00	.00	.00	.00	.38	1.1	1.4	1.3	.45	.11
15	.00	.00	.00	.00	.00	.00	.38	1.1	1.3	1.3	.44	.11
16	.00	.00	.00	.00	.00	.00	.33	1.1	1.5	1.2	.38	.21
17	.00	.00	.00	.00	.00	.00	.32	1.1	1.4	1.2	.38	.32
18	.00	.00	.00	.00	.00	.00	.32	1.1	1.4	1.2	.38	.65
19	.00	.00	.00	.00	.00	.00	.32	1.4	1.4	1.2	.32	.58
20	.00	.00	.00	.00	.00	.00	.53	1.5	1.3	1.1	.32	.73
21	.00	.00	.00	.00	.00	.00	1.7	1.5	1.3	1.1	.26	1.6
22	.00	.00	.00	.00	.00	.00	2.0	1.6	1.4	.98	.26	1.8
23	.00	.00	.00	.00	.00	.00	1.9	1.6	1.5	.89	.31	1.7
24	.00	.00	.00	.00	.00	.30	1.7	1.6	1.4	.93	.21	1.7
25	.00	.00	.00	00	.00	1.0	1.5	1.6	1.4	.89	.21	1.6
26	.00	.00	.00	.00	.00	1.0	1.5	1.6	1.4	.82	.21	1.6
27	.00	.00	.00	.00	.00	.60	1.4	1.5	1.4	.81	.21	1.6
28	.00	.00	.00	.00	.00	.35	1.3	1.5	1.4	.84	.21	1.8
29	.00	.00	.00	.00	---	.35	1.3	1.5	1.5	.81	.13	1.8
30	.00	.00	.00	.00	---	.35	1.2	1.5	1.6	.81	.11	1.8
31	.00	---	.00	.00	---	.35	---	1.5	---	.81	.11	---
TOTAL	.00	.00	.00	.00	.00	4.30	24.80	39.7	43.4	37.19	12.80	20.96
MEAN	.000	.000	.000	.000	.000	.14	.83	1.28	1.45	1.20	.41	.70
MAX	.00	.00	.00	.00	.00	1.0	2.0	1.6	1.6	1.6	.76	1.8
MIN	.00	.00	.00	.00	.00	.00	.32	1.0	1.3	.81	.11	.04
AC-FT	.00	.00	.00	.00	.00	8.5	49	79	86	74	25	42

CAL YR 1977 TOTAL 36.68 MEAN .11 MAX 1.1 MIN .00 AC-FT 77
WTR YR 1978 TOTAL 183.15 MEAN .50 MAX 2.0 MIN .00 AC-FT 363

06470833 PILOT DRAIN AT OAKES, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1971 to current year.
WATER TEMPERATURES: October 1971 to current year.

INSTRUMENTATION.--Temperature recorder since November 1976.

REMARKS.--Extremes for current year are not given due to missing record. No flow Oct. 1, 1977 to Mar. 23, 1978. In addition to continuous temperature recorder, samples were collected by a local observer on an approximate daily basis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Apr. 5, 10, and 12, 1973; minimum daily, 320 micromhos Mar. 16, 1972.
WATER TEMPERATURES: Maximum daily, 26.5°C Aug. 18, 1972; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
MAR 29...	0940	E.35	410	7.6	1.0	10	190	31	50
APR 11...	0900	.35	525	7.5	4.0	5	290	68	73
MAY 03...	0940	1.1	580	7.7	11.0	5	340	89	83
JUN 02...	1102	1.6	640	7.6	12.0	90	370	110	91
JUL 11...	1645	14	700	7.7	19.5	6	370	110	93
AUG 02...	1720	.63	680	7.2	17.0	5	340	82	85
SEP 08...	0945	.11	665	7.6	12.0	4	340	200	90

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
MAR 29...	17	9.7	9	.3	12	200	0	160	8.0
APR 11...	25	12	8	.3	6.5	270	0	220	14
MAY 03...	31	14	8	.3	5.9	300	0	250	9.6
JUN 02...	34	16	9	.4	6.0	310	0	250	12
JUL 11...	34	18	9	.4	6.1	320	0	260	10
AUG 02...	30	20	11	.5	6.1	310	0	250	31
SEP 08...	29	20	11	.5	4.8	180	0	150	7.2

06470833 PILOT DRAIN AT OAKES, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
MAR 29...	45	6.5	.2	16	250	259	.34	.24	.86
APR 11...	62	8.7	.2	20	329	348	.45	.31	1.5
MAY 03...	90	10	.2	17	385	403	.52	1.14	.88
JUN 02...	100	19	.2	13	431	435	.59	1.86	.64
JUL 11...	110	15	.2	20	458	457	.62	18.2	.62
AUG 02...	100	15	.2	22	437	434	.59	.74	.52
SEP 08...	94	14	.2	32	433	383	.59	.13	2.3

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)
MAR 29...	.10	--	--	--	60	--	--	--	--
APR 11...	.04	10	5	100	60	0	0	0	0
MAY 03...	.01	--	--	--	70	--	--	--	--
JUN 02...	.01	--	--	--	70	--	--	--	--
JUL 11...	.01	--	--	--	70	--	--	--	--
AUG 02...	.00	--	--	--	80	--	--	--	--
SEP 08...	.03	--	--	--	80	--	--	--	--

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
APR 11...	30	2	30	490	.0	2	1	0	260	.0	10	.00

06470833 PILOT DRAIN AT OAKES, ND--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	---	625	700	---	700	---
2						---	---	650	710	---	700	---
3						---	500	650	---	730	700	---
4						---	520	640	---	---	700	---
5						---	510	650	725	730	---	700
6						---	500	---	725	730	---	700
7						---	490	---	680	740	710	650
8						---	---	650	680	---	725	700
9						---	---	660	700	---	725	---
10						---	530	660	---	740	710	---
11						---	540	675	---	740	725	650
12						---	540	630	700	740	---	600
13						---	550	---	700	750	---	625
14						---	565	---	710	725	725	600
15						---	---	690	710	---	700	650
16						---	---	700	680	---	700	---
17						---	560	680	---	720	700	---
18						---	570	725	---	720	690	680
19						---	570	710	720	720	---	750
20						---	550	---	720	720	---	700
21						---	520	---	725	720	700	700
22						---	---	700	725	---	700	700
23						---	---	700	710	---	680	---
24						---	500	700	---	725	680	---
25						---	520	700	---	730	560	700
26						---	540	700	710	730	---	750
27						---	560	---	720	720	---	750
28						---	570	---	720	725	700	750
29						430	---	---	720	---	700	750
30						430	---	700	700	---	700	---
31						450	---	710	---	700	700	---
MEAN						450	536	677	709	729	697	690

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	---	9.0	11.0	---	16.0	---
2						---	---	9.0	10.5	---	14.5	---
3						---	2.0	9.5	---	17.5	13.0	---
4						---	1.5	10.0	---	---	14.0	---
5						---	3.5	9.0	13.0	19.0	---	12.5
6						---	3.0	---	13.5	16.0	---	13.0
7						---	3.5	---	12.5	16.5	18.0	12.0
8						---	---	7.5	13.0	---	17.0	12.0
9						---	---	7.0	13.0	---	16.0	---
10						---	3.5	10.5	---	15.0	16.0	---
11						---	3.5	12.5	---	15.5	17.0	12.0
12						---	4.0	11.5	12.5	17.5	---	15.0
13						---	3.5	---	15.0	16.5	---	12.0
14						---	4.5	---	16.0	17.5	18.5	11.0
15						---	---	12.5	17.5	---	17.5	10.0
16						---	---	13.0	17.5	---	14.5	---
17						---	6.0	14.0	---	18.5	16.0	---
18						---	5.0	14.0	---	18.5	14.5	12.0
19						---	4.0	14.0	17.0	18.5	---	10.0
20						---	2.5	---	14.5	16.0	---	10.0
21						---	1.5	---	13.0	15.5	15.0	10.0
22						---	---	13.5	16.0	---	14.0	11.0
23						---	---	15.0	15.5	---	15.5	---
24						---	4.0	15.5	---	17.0	14.0	---
25						---	4.0	16.0	---	18.5	17.0	12.0
26						---	8.0	17.5	17.5	18.5	---	13.0
27						---	9.5	---	17.0	16.5	---	10.0
28						---	11.0	---	18.0	17.0	13.5	10.0
29						.5	---	---	19.5	---	11.5	11.0
30						.5	---	14.0	18.5	---	12.0	---
31						2.0	---	11.5	---	15.5	12.0	---
MEAN						1.0	4.5	12.0	15.0	17.0	15.0	11.5

06470833 PILOT DRAIN AT OAKES, ND--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	14.0	10.5	---	---	20.5	19.5	17.5	17.0	14.0	13.0
2	---	---	14.5	10.5	---	---	20.0	18.5	17.0	16.5	13.5	12.5
3	---	---	14.0	10.5	17.0	12.5	21.0	19.5	16.5	15.5	13.5	12.0
4	---	---	---	---	18.0	14.5	22.0	20.0	17.0	15.5	13.5	12.5
5	---	---	---	---	18.0	14.0	22.5	21.0	17.5	16.0	13.5	12.5
6	---	---	---	---	19.5	15.0	22.5	20.0	19.0	17.5	13.0	12.5
7	---	---	---	---	17.5	14.5	20.0	18.5	20.0	19.0	13.0	11.5
8	---	---	---	---	18.0	14.5	20.0	18.5	20.0	19.0	12.5	11.5
9	---	---	---	---	19.0	14.5	19.0	17.0	19.0	17.0	12.5	11.5
10	---	---	---	---	18.5	16.0	18.5	17.0	20.0	18.0	12.5	11.5
11	---	---	---	---	18.0	16.0	19.0	17.0	20.0	18.5	17.5	12.0
12	---	---	---	---	17.5	14.0	20.0	19.0	21.0	19.0	17.5	14.5
13	---	---	---	---	19.0	16.0	19.5	18.0	21.0	19.5	14.5	13.5
14	---	---	---	---	21.0	17.5	20.0	18.5	21.0	19.5	13.5	12.5
15	---	---	---	---	22.0	19.5	20.5	19.5	20.5	18.0	12.5	11.0
16	---	---	---	---	21.0	19.5	20.5	19.5	18.0	16.0	14.5	11.5
17	---	---	---	---	20.0	17.5	20.5	19.5	17.5	17.5	13.5	13.0
18	---	---	---	---	19.0	15.5	20.5	20.0	17.5	16.0	13.0	12.5
19	---	---	---	---	19.5	17.5	20.5	19.5	16.0	13.5	12.5	11.0
20	---	---	---	---	18.0	16.0	19.5	18.0	16.5	15.0	13.0	12.5
21	---	---	---	---	17.5	14.5	18.0	18.0	17.5	16.5	14.5	12.0
22	5.5	4.0	---	---	17.5	17.0	18.0	18.0	17.0	15.0	15.0	12.5
23	5.5	5.5	---	---	19.5	16.5	19.0	18.0	16.5	15.0	16.0	14.0
24	6.0	5.5	---	---	20.5	19.0	20.0	19.0	16.5	15.0	16.0	14.5
25	9.0	5.0	---	---	21.5	19.5	20.5	20.0	16.5	15.5	16.0	13.5
26	12.0	9.0	---	---	21.0	19.0	20.0	19.5	16.5	16.0	16.0	14.5
27	12.0	10.0	---	---	21.0	18.5	20.0	18.5	16.0	15.5	15.5	12.0
28	11.5	10.0	---	---	22.0	19.5	19.5	19.0	16.0	15.0	14.0	12.0
29	11.5	10.0	---	---	22.0	21.0	19.5	18.0	15.0	12.5	13.0	12.5
30	13.0	9.5	---	---	21.5	20.0	18.0	16.5	14.0	13.0	14.0	11.0
31	---	---	---	---	---	---	17.5	17.0	14.0	13.0	---	---
MONTH	13.0	4.0	14.5	10.5	22.0	12.5	22.5	16.5	21.0	12.5	17.5	11.0

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'10", long 98°10'26", in SE¼SE¼ sec.34, T.129 N., R. 60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota State line road 6.5 mi (9.8 km) south, and 1 mi (1.6 km) west from Ludden, ND.

DRAINAGE AREA.--6,650 mi² (17,200 km²), approximately, of which about 2,800 mi² (7,300 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily recorded, 3,600 micromhos Mar. 7-12, 1978; minimum daily recorded 242 micromhos Apr. 25, 1975.
WATER TEMPERATURES: Maximum daily recorded, 28.5°C June 12, 1976, July 5, 1977; minimum daily recorded, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily recorded, 3,600 micromhos Mar. 7-12; minimum daily recorded, 300 micromhos Mar. 31 and Apr. 1.
WATER TEMPERATURES: Maximum daily recorded, 27.5°C July 6, 16; minimum daily recorded, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT									
03...	1400	1000	8.8	15.0	55	11.5	280	0	50
31...	1200	940	8.6	10.5	2	9.8	290	34	56
DEC									
05...	1345	1020	8.0	.0	12	8.3	370	64	73
JAN									
09...	1300	1680	7.8	.0	15	--	670	180	140
MAR									
07...	1130	3500	7.5	.0	65	.6	1500	290	330
APR									
10...	1605	390	8.0	6.5	55	--	160	33	36
MAY									
03...	1200	670	8.5	14.5	20	8.2	300	69	69
JUL									
11...	1430	600	8.6	22.5	37	9.5	240	39	55
AUG									
02...	1500	665	8.5	20.5	23	8.4	250	5	54
SEP									
07...	1920	748	8.6	26.5	10	9.5	270	21	56

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
03...	37	130	49	3.4	14	340	0	280	.9
31...	36	100	42	2.6	10	310	0	250	1.2
DEC									
05...	45	120	40	2.7	13	370	0	300	5.9
JAN									
09...	78	170	35	2.9	17	600	0	490	15
MAR									
07...	170	410	36	4.6	33	1500	0	1230	76
APR									
10...	16	24	24	.8	6.7	150	0	120	2.4
MAY									
03...	30	54	28	1.4	11	270	3	230	1.4
JUL									
11...	26	43	27	1.2	11	250	0	210	1.0
AUG									
02...	27	44	27	1.2	12	280	7	240	1.5
SEP									
07...	31	64	33	1.7	15	300	0	250	1.2

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT								
03...	210	63	.3	13	683	687	.93	.05
31...	190	52	.2	21	630	628	.86	2.1
DEC								
05...	240	57	.3	28	739	769	1.01	.12
JAN								
09...	390	95	.5	35	1240	1220	1.69	.08
MAR								
07...	960	220	.8	58	2830	2920	3.85	.09
APR								
10...	66	16	.1	13	249	257	.34	.57
MAY								
03...	180	19	.2	12	468	512	.64	.02
JUL								
11...	110	20	.2	12	406	401	.55	.03
AUG								
02...	100	20	.2	2.9	424	405	.58	.01
SEP								
07...	120	27	.2	7.4	479	482	.65	3.0

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT									
03...	.06	30	7	400	420	0	0	0	0
31...	.01	--	--	--	340	--	--	--	--
DEC									
05...	.15	--	--	--	370	--	--	--	--
JAN									
09...	.40	--	--	--	490	--	--	--	--
MAR									
07...	1.6	--	--	--	1100	--	--	--	--
APR									
10...	.18	30	4	100	100	0	0	0	0
MAY									
03...	.07	--	--	--	170	--	--	--	--
JUL									
11...	.16	--	--	--	170	--	--	--	--
AUG									
02...	.14	--	--	--	190	--	--	--	--
SEP									
07...	.08	--	--	--	220	--	--	--	--

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
OCT												
03...	40	3	70	30	.0	4	3	0	370	.6	0	.00
APR												
10...	50	3	20	20	.0	1	0	1	190	1.0	0	.00

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	960	1040	---	---	3500	300	650	790	520	690	720
2	1020	1000	1040	---	---	3500	330	650	790	520	680	720
3	1030	990	1040	---	---	3500	320	650	780	530	690	710
4	1030	970	1040	---	---	3400	320	651	780	540	700	720
5	1030	990	1040	---	---	3400	330	660	780	550	680	730
6	1020	970	1020	---	---	3400	340	680	780	550	690	730
7	1000	970	1010	---	---	3600	350	740	790	560	700	740
8	1000	960	1020	---	---	3600	370	740	780	570	700	730
9	990	960	1020	---	---	3600	400	750	810	600	700	740
10	980	950	1030	1810	2850	3600	400	750	830	630	710	730
11	980	1000	1050	1810	2840	3600	410	750	840	620	710	710
12	980	1050	1060	1750	2840	3600	445	740	830	640	700	700
13	980	1060	1150	1650	2840	3500	445	750	830	640	730	710
14	980	1060	1260	1640	2850	3400	450	760	820	640	740	710
15	970	1070	1300	1690	2860	3500	455	770	830	620	720	700
16	980	1050	1240	1700	2860	3500	490	770	790	610	700	690
17	980	1030	1240	1750	2880	3200	500	780	790	600	700	700
18	980	1040	1240	1770	2890	3300	510	800	780	620	710	700
19	970	1050	1240	1790	2920	2450	520	810	770	630	710	710
20	950	1070	1240	1800	2940	2450	540	800	740	630	710	710
21	950	1080	1240	1820	2960	2000	550	790	740	640	710	720
22	950	1090	1240	1830	3000	2000	550	780	720	640	700	720
23	970	1110	1260	1840	3370	760	560	760	690	650	700	720
24	980	1150	1280	1860	3390	690	570	760	660	660	710	740
25	980	1200	1390	---	3370	590	590	760	670	650	700	730
26	980	1170	1400	---	3380	590	610	760	640	660	700	720
27	980	1150	1440	---	3380	510	690	760	590	660	690	690
28	970	1170	1500	1900	3390	500	670	765	550	680	710	680
29	980	1160	---	1950	---	440	660	765	550	690	710	690
30	980	1110	---	1990	---	310	670	780	540	690	720	700
31	970	---	---	1980	---	300	---	770	---	690	720	---
MEAN	980	1050	1180	1810	3040	2460	478	745	743	617	705	718

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	9.0	.5	.0	---	.0	1.5	14.0	14.5	23.5	22.0	20.0
2	12.0	6.5	.5	---	---	.0	4.0	14.0	14.5	24.0	19.0	23.0
3	11.5	9.5	.5	---	---	.0	4.0	14.0	17.0	26.5	18.5	22.0
4	12.5	6.5	.0	---	---	.0	4.5	14.5	18.0	27.0	19.0	22.5
5	7.5	7.0	.0	---	---	.0	5.0	14.0	19.5	26.0	23.0	23.5
6	9.5	11.0	.0	---	---	.0	6.0	15.5	20.0	27.5	23.5	25.5
7	8.0	10.5	.0	---	---	.0	6.5	12.5	17.0	24.0	23.0	25.5
8	6.0	6.0	.0	---	---	.0	6.5	11.5	17.5	26.5	22.5	23.5
9	8.0	3.5	.0	---	---	1.0	7.0	14.0	19.0	20.0	26.0	21.5
10	7.0	1.0	.0	.0	.0	1.0	7.0	14.0	20.0	22.5	22.0	22.0
11	7.5	1.0	.0	.0	.0	1.0	7.0	15.5	19.0	21.5	22.5	23.5
12	6.0	2.0	.5	.0	.0	.5	5.5	13.5	20.0	23.0	24.0	21.5
13	8.0	3.5	.5	.0	.0	.0	6.0	15.5	20.5	24.5	24.5	18.5
14	9.0	2.0	.5	.0	.0	1.0	7.0	15.5	21.0	24.5	25.0	17.0
15	7.0	1.5	.5	.0	.0	.5	7.5	15.5	22.0	27.0	22.5	16.5
16	7.5	1.0	.5	.0	.0	.0	8.0	16.5	22.0	27.5	22.0	17.0
17	8.0	1.0	1.0	.0	.0	.5	7.5	18.0	22.0	25.0	23.0	15.0
18	7.5	1.5	1.0	.0	.0	.0	6.0	19.0	18.0	25.0	20.0	14.5
19	8.0	1.5	1.0	.0	.0	.0	4.0	19.0	20.0	24.5	19.0	13.5
20	10.0	1.0	.0	.5	.0	.5	3.5	16.0	18.5	22.0	19.5	13.0
21	9.5	1.5	.0	.0	.0	.5	8.5	17.0	18.5	22.5	21.5	13.0
22	7.0	.5	.0	.0	.0	1.5	8.5	17.5	20.0	22.0	21.5	13.5
23	7.0	.0	1.0	.0	.0	1.5	7.0	19.5	25.0	21.0	21.0	13.5
24	9.5	.0	.0	.0	.0	1.5	7.0	21.0	22.5	22.5	22.5	14.5
25	8.0	.0	.0	---	.0	1.0	8.0	22.0	23.0	26.0	24.5	14.5
26	9.5	.0	.0	---	.0	1.5	13.0	23.0	24.5	24.0	24.0	15.5
27	10.0	.0	.0	---	.0	2.0	11.0	21.0	23.0	23.0	23.5	15.0
28	9.0	.5	.0	.0	.0	1.0	12.0	19.0	24.5	24.5	22.0	15.0
29	12.5	.5	.0	.0	---	1.0	12.0	20.0	26.5	20.5	20.0	14.0
30	8.5	.5	.0	.0	---	.5	11.0	19.5	23.0	20.5	19.0	12.0
31	12.5	---	.0	.0	---	2.0	---	18.5	---	21.0	19.5	---
MEAN	9.0	3.0	.5	.0	.0	.5	7.0	17.0	20.5	24.0	22.0	18.0

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

DISSOLVED OXYGEN AND WATER TEMPERATURE PROFILE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MG/L	DEGREES, C
Oct. 3, 1977		
1400	11.5	--
1500	10.7	--
1600	10.5	--
1700	10.4	--
1800	11.2	--
1900	10.9	--
2000	10.3	--
2100	9.1	--
2200	8.8	--
2300	9.2	--
2400	8.8	--
Oct. 4, 1977		
1100	10.2	--
1200	11.0	--
1300	11.3	--
1400	11.3	--
Jan. 9, 1978		
1300	3.1	0.0
1400	2.9	.0
1500	2.9	.0
1600	3.0	.0
1700	3.0	.0
1800	3.1	.0
1900	3.0	.0
2000	2.9	.0
2100	2.9	.0
2200	2.9	.0
2300	3.0	.0
2400	2.9	.0
Jan. 10, 1978		
0100	3.0	.0
0200	3.1	.0
0300	3.2	0.0
0400	3.3	.0
0500	3.4	.0
0600	3.4	.0
0700	3.6	.0
0800	3.3	.0
0900	3.2	.0
1000	3.0	.0
1100	3.0	.0
1200	2.9	.0
1300	2.9	.0
1400	2.9	.0
Apr. 10, 1978		
1200	11.0	6.5
1300	10.9	--
1400	11.0	--
1500	10.9	--
1600	11.3	6.5
1700	11.5	--
1800	11.0	--
1900	10.8	--
2000	10.5	--
2100	10.8	--
2200	11.0	--
2300	11.3	--
2400	10.9	--
Apr. 11, 1978		
0100	11.1	--
0200	10.9	--
0300	10.6	--
0400	10.4	--
0500	10.4	--
0600	10.4	--
0700	10.3	--
0800	10.4	--
0900	10.7	--
1000	11.4	--
1100	11.6	--
1200	11.2	--
Jul. 11, 1978		
1300	9.2	22.5
1400	9.5	23.0
1500	9.5	23.0
1600	9.5	--
1700	9.5	--
1800	9.7	--
1900	9.5	--
2000	9.5	23.0
2100	9.3	--
2200	9.1	--
2300	9.1	--
2400	8.7	--
Jul. 12, 1978		
0100	8.6	--
0200	8.1	--
0300	7.6	22.0
0400	7.3	--
0500	7.4	--
0600	7.3	--
0700	7.1	--
0800	7.0	--
0900	6.8	22.0
1000	6.5	--
1100	6.5	--
1200	6.7	--
1300	7.3	22.0

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, N. Dak., Hydrologic Unit 10160004, on left bank 0.4 mi (0.6 km) upstream from State line, 7.8 mi (12.6 km) northeast of Frederick, SD, and 15.7 mi (25.3 km) upstream from mouth.

DRAINAGE AREA.--750 mi² (1,940 km²), approximately, of which about 270 mi² (699 km²) is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,365 ft (416 m), from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi (0.6 km) downstream at datum 0.94 ft (0.287 m) lower.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 19.6 ft³/s (0.555 m³/s), 14,200 acre-ft/yr (17.5 hm³/yr); median of yearly mean discharges, 10 ft³/s (0.28 m³/s), 7,240 acre-ft/yr (8.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s (168 m³/s) Apr. 11, 1969, gage height, 15.22 ft (4.639 m); maximum gage height, 16.05 ft (4.892 m) Apr. 11, 1969, backwater from ice; no flow for long periods each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	2100	--	--	a*14.21	4.331	May 17	0330	80	2.27	4.98	1.518
Mar. 25	--	a*1,800	51.0	--	--	Jun.30	1100	174	4.93	5.99	1.826
Apr. 28	0100	76	2.15	4.95	1.509	Jul. 3	1300	756	21.4	8.45	2.576

No flow for many days.

a - Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	441	60	14	131	6.1	.04
2	.00	.00	.00	.00	.00	.00	411	52	13	294	5.6	.03
3	.00	.00	.00	.00	.00	.00	371	47	12	722	4.8	.01
4	.00	.00	.00	.00	.00	.00	303	42	11	542	3.9	.00
5	.00	.00	.00	.00	.00	.00	239	37	9.5	319	3.3	.00
6	.00	.00	.00	.00	.00	.00	196	30	8.5	225	2.7	.00
7	.00	.00	.00	.00	.00	.00	168	28	8.5	213	2.6	.01
8	.00	.00	.00	.00	.00	.00	148	31	7.6	185	2.2	.01
9	.00	.00	.00	.00	.00	.00	149	29	8.2	143	2.1	.01
10	.00	.00	.00	.00	.00	.00	149	25	9.8	107	1.7	.01
11	.00	.00	.00	.00	.00	.00	136	25	9.8	84	1.6	.02
12	.00	.00	.00	.00	.00	.00	117	33	8.5	70	1.4	.02
13	.00	.00	.00	.00	.00	.00	102	38	7.9	50	.90	.02
14	.00	.00	.00	.00	.00	.00	89	39	6.7	49	.82	1.7
15	.00	.00	.00	.00	.00	.00	80	39	7.0	45	1.7	21
16	.00	.00	.00	.00	.00	.00	73	57	10	42	1.5	24
17	.00	.00	.00	.00	.00	.00	65	78	6.7	39	1.6	19
18	.00	.00	.00	.00	.00	.00	66	60	5.9	33	1.6	16
19	.00	.00	.00	.00	.00	.00	63	50	7.9	31	.99	13
20	.00	.00	.00	.00	.00	.00	54	48	9.5	24	.54	9.0
21	.00	.00	.00	.00	.00	1.0	48	38	8.5	23	.54	7.3
22	.00	.00	.00	.00	.00	10	48	32	12	23	.54	4.1
23	.00	.00	.00	.00	.00	150	53	33	17	20	.54	3.5
24	.00	.00	.00	.00	.00	1200	53	30	21	18	.37	2.6
25	.00	.00	.00	.00	.00	1500	49	26	27	17	.33	1.5
26	.00	.00	.00	.00	.00	1600	50	23	38	15	.25	1.6
27	.00	.00	.00	.00	.00	1460	66	22	33	14	.19	1.2
28	.00	.00	.00	.00	.00	1130	75	20	32	12	.16	.67
29	.00	.00	.00	.00	---	979	70	19	37	19	.13	.60
30	.00	.00	.00	.00	---	787	66	17	155	8.5	.09	.40
31	.00	---	.00	.00	---	552	---	15	---	7.6	.04	---
TOTAL	.00	.00	.00	.00	.00	9369.00	3998	1139	562.5	3524.1	50.83	128.03
MEAN	.000	.000	.000	.000	.000	302	133	36.7	18.8	114	1.64	4.27
MAX	.00	.00	.00	.00	.00	1600	441	78	155	722	6.1	24
MIN	.00	.00	.00	.00	.00	.00	48	15	5.9	7.6	.04	.00
AC-FT	.00	.00	.00	.00	.00	18580	7930	2260	1120	6990	101	254

CAL YR 1977 TOTAL 251.19 MEAN .69 MAX 25 MIN .00 AC-FT 498
WTR YR 1978 TOTAL 18771.66 MEAN 51.4 MAX 1600 MIN .00 AC-FT 37230

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		Red River of the North basin				
	Sheyenne River	Lat 47°47'47", long 98°35'43", in SE¼SW¼NE¼ sec.21, T.150 N., R.62 W., Eddy County, 3½ miles southwest of Hamar.	--	--	6-15-78	0
					8-29-78	0.01
Edmore Coulee	Red River of the North	Lat 48°15'12", long 98°42'30", in SW¼SW¼SW¼ sec.12, T.155 N., R.63 W., Ramsey County, 8 miles southwest of Webster.	--	1977	3-23-78	0
					3-28-78	0
					3-31-78	0.82
					4-6-78	345
					4-10-78	1,070
					4-18-78	399
					4-25-78	155
					8-29-78	0
Starkweather Coulee	Red River of the North	Lat 48°20'32", long 98°40'21", in SE¼SE¼NE¼ sec.9, T.156 N., R.64 W., Ramsey County, ¼ mile south of Garske.	--	1977	3-23-78	0
					3-28-78	0
					3-31-78	0
					4-6-78	286
					4-10-78	279
					4-18-78	149
					4-25-78	92.9
Middle Branch Park River	Red River of the North	Lat 48°30'12", long 97°45'53", in SE¼NE¼SW¼ sec.17, T.158 N., R.55 W., Walsh County, 4 miles east of Edinburg.	83.6	--	4-4-78	63.8
					4-6-78	382
					4-9-78	324
					4-20-78	145
					6-21-78	0.80
Middle Branch Park River	Red River of the North	Lat 48°27'08", long 97°32'07", in SE¼NE¼NE¼ sec.1, T.157 N., R.54 W., Walsh County, 1 mile southwest of Nash.	[a]150	--	4-8-78	272
					4-10-78	357
					4-19-78	105
					6-21-78	0.77
North Branch Park River	Red River of the North	Lat 48°35'14, long 97°54'20", in SW¼SW¼SW¼ sec.17, T.159 N., R.56 W., Pembina County, 1 mile west of Gardar, 1 mile upstream from 05089200 North Branch Park River at Gardar.	54.1	--	4-4-78	17.9
					4-6-78	806
					4-9-78	647
					4-21-78	38.7
					6-22-78	0.37
North Branch Park River	Red River of the North	Lat 48°34'41", long 97°46'21", in NW¼NW¼SW¼ sec.20, T.159 N., R.55 W., Pembina County, 5 miles west of Crystal.	65	--	4-5-78	83.7
					4-7-78	326
					4-9-78	632
					4-20-78	36.4
North Branch Park River	Red River of the North	Lat 48°32'09", long 97°37'24", in SE¼SE¼NE¼ sec.5, T.158 N., R.54 W., Walsh County, at bridge on N. Dak. Highway 18 at Hoople.	93.2	--	4-8-78	479
					4-10-78	783
					4-19-78	105
					6-22-78	[a]0.15
Cart Creek	Red River of the North	Lat 48°36'06", long 97°41'28", in SW¼SE¼SE¼ sec.11, T.159 N., R.55 W., Pembina County, at bridge on N. Dak. Highway 66, ½ mile west of Crystal.	83.6	--	4-5-78	91.8
					4-7-78	614
					4-10-78	296
					4-20-78	23.8
					6-21-78	0.05
Cart Creek	Red River of the North	Lat 48°32'36", long 97°35'16", in SW¼SW¼SE¼ sec.34, T.159 N., R.54 W., Pembina County, 2 miles east of Hoople.	[a]105	--	4-5-78	122
					4-8-78	520
					4-20-78	12.7
					6-21-78	[a]0.005
North Branch Park River	Red River of the North	Lat 48°28'14", long 97°28'57", in SE¼SE¼SW¼ sec.28, T.158 N., R.53 W., Walsh County, 1 mile east of Nash.	208	--	4-1-78	78.7
					4-8-78	556
					4-10-78	811
					4-19-78	181
					6-21-78	0.38
McCleod Drain	Park River	Lat 48°23'53", long 97°23'00", in SW¼SW¼SW¼ sec.20, T.157 N., R.52 W., Walsh County, at bridge on county highway, 2 miles southeast of Grafton.	--	1971, 1975, 1976	4-1-78	131

a - Estimated

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Red River of the North basin				
Pembina River	Red River of the North	Lat 48°54'10", long 98°13'40", in SW¼NW¼ sec.29, T.163 N., R.57 W., Cavalier County, at bridge on county highway, 3 miles east of Vang.	--	1962,66, 1970,72, 1975,77	10-25-77	6.63
					12-7-77	[a]2.0
					1-3-78	[a]0.50
					2-1-78	[a]0.08
					2-22-78	[a]0.01
					3-21-78	[a]1.0
					3-30-78	29.6
					4-6-78	[a]1,500
					4-8-78	1,180
					4-18-78	732
					4-25-78	[a]710
					6-1-78	285
					6-28-78	53.6
					7-26-78	36.4
					8-29-78	46.5
Souris River	Red River of the North	Lat 48°14'23", long 101°17'30", in NE¼NW¼NW¼ sec.24, T.155 N., R.83 W., Ward County, at bridge on Main Street in Minot.	--	1968-76	3-30-78	1,000
Souris River	Red River of the North	Lat 48°05'44", long 100°46'40", in SE¼SE¼SE¼ sec.2, T.153 N., R.79 W., McHenry County, at bridge on county highway, 3 miles southwest of Verendrye.	--	1977	10-18-77	5.64
		James River basin				
Pipestem Creek	James River	Lat 46°57'00", long 98°45'26", on south line sec.9, T.140 N., R. 64 W., Stutsman County, at bridge on county highway, 3 miles northwest of Jamestown.	--	1974-76	4-13-78	62.0
					5-15-78	85.5
					6-1-78	77.1
					6-21-78	71.4
					7-5-78	65.8
					8-1-78	78.3

a - Estimated

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
PART 5. HUDSON BAY BASIN											
RED RIVER OF THE NORTH BASIN											
05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)											
OCT , 1977 17...	1630	56.90	1400.00	870	9.3	9.0	60	230	45	31	38
JAN , 1978 18...	0845	58.17	1400.00	1420	7.8	.0	12	420	120	57	67
MAY 09...	1530	60.78	1400.00	780	9.2	12.5	40	220	36	30	34
AUG 16...	1300	59.26	1400.00	855	9.0	23.5	15	280	34	50	37
05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)											
OCT , 1977 18...	0845	42.10	1400.00	1940	8.0	.5	130	680	320	92	110
MAY , 1978 10...	1215	43.17	1400.00	555	7.7	13.0	65	220	60	50	22
AUG 16...	1000	42.70	1400.00	975	8.3	18.0	53	360	41	75	42
05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)											
OCT , 1977 18...	1100	39.95	1400.00	1600	8.9	3.0	140	570	220	81	88
MAY , 1978 10...	1315	42.69	1400.00	680	8.6	14.5	80	250	92	48	31
AUG 16...	0850	39.96	1400.00	960	8.5	18.0	45	350	79	71	41
05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)											
OCT , 1977 18...	1530	21.08	1400.00	4100	9.3	9.5	150	830	370	69	160
JAN , 1978 18...	1630	21.09	1400.00	5000	8.6	.0	23	970	460	76	190
MAY 10...	0835	23.04	1400.00	4000	8.6	10.0	25	840	390	74	160
AUG 15...	1430	23.06	1400.00	4500	9.0	22.0	9	800	360	72	150
05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)											
OCT , 1977 18...	1500	21.00	1400.00	4400	9.3	9.0	25	830	370	68	160
JAN , 1978 18...	1710	21.09	1400.00	4520	8.5	.0	15	1000	520	84	200
MAY 10...	0915	23.04	1400.00	4000	8.4	10.0	17	840	380	74	160
AUG 15...	1550	23.06	1400.00	4600	9.0	22.0	10	880	400	73	170
05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)											
OCT , 1977 18...	1600	21.70	1400.00	6000	9.2	8.5	33	1100	610	72	230
JAN , 1978 19...	1155	21.08	1400.00	7200	8.8	.0	13	1300	740	80	270
MAY 09...	1700	22.23	1400.00	5200	8.6	15.5	30	960	510	71	190
AUG 15...	1630	21.97	1400.00	7000	9.0	22.5	40	960	520	55	200

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 17...	83	40	2.4	25	230	0	190	.2	210	27	.1
JAN , 1978 18...	120	36	2.6	40	360	0	300	9.1	360	44	.2
MAY 09...	71	39	2.1	21	160	29	180	.2	160	23	.1
AUG 16...	76	35	2.0	25	260	18	240	.5	170	25	.2

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 18...	180	34	3.0	50	440	1	360	1.1	600	73	.2
MAY , 1978 10...	31	22	.9	17	190	0	160	6.1	110	13	.1
AUG 16...	70	20	1.6	24	390	0	320	3.1	170	22	.2

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 18...	150	35	2.7	42	410	8	350	.9	490	61	.3
MAY , 1978 10...	46	27	1.3	17	190	0	160	.8	150	18	.4
AUG 16...	63	27	1.5	25	300	13	270	1.7	200	24	.2

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 18...	640	60	9.7	92	560	1	460	.5	1400	300	.1
JAN , 1978 18...	780	61	11	100	570	26	510	2.5	1700	330	.1
MAY 10...	650	59	9.7	99	510	20	450	2.2	1400	300	.1
AUG 15...	680	62	10	92	430	50	440	.9	1400	290	.2

05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 18...	660	60	10	89	500	27	460	.4	1400	300	.1
JAN , 1978 18...	740	58	10	100	580	22	510	3.2	1700	340	.1
MAY 10...	650	59	9.7	100	520	20	460	3.6	1500	320	.1
AUG 15...	670	59	9.8	93	420	56	440	.9	1500	300	.2

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 18...	1100	65	14	130	540	46	520	.6	2200	490	.1
JAN , 1978 19...	1200	63	14	140	660	31	590	1.8	2700	510	.1
MAY 09...	910	64	13	120	470	40	450	2.2	1900	430	.0
AUG 15...	1000	66	14	130	430	52	440	.9	2100	480	.1

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)											
OCT , 1977 17...	20	576	556	.78	.00	.02	10	9	0	140	1
JAN , 1978 10...	41	994	988	1.35	.01	.10	0	10	100	200	2
MAY 09...	15	484	463	.66	.15	.04	0	4	200	110	1
AUG 16...	30	609	568	.83	.02	.24	0	6	300	160	3
05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)											
OCT , 1977 18...	12	1430	1340	1.94	.07	.00	40	4	100	320	2
MAY , 1978 10...	16	369	355	.50	.27	.14	0	6	100	90	1
AUG 16...	24	643	621	.87	.07	.60	0	16	100	170	2
05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)											
OCT , 1977 18...	35	1170	1160	1.59	.08	.07	30	22	0	250	--
MAY , 1978 10...	18	447	426	.61	.72	.17	20	3	200	90	1
AUG 16...	39	636	627	.87	.53	.36	0	14	80	150	--
05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)											
OCT , 1977 18...	13	3000	2950	4.08	.19	.30	20	20	0	650	1
JAN , 1978 18...	16	3430	3500	4.66	.33	.45	0	26	100	720	2
MAY 10...	15	3040	2970	4.13	--	.40	0	16	100	640	1
AUG 15...	20	3020	2970	4.11	.02	.52	0	17	200	660	2
05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)											
OCT , 1977 18...	13	3010	2970	4.09	.13	.33	20	24	0	660	1
JAN , 1978 18...	16	3450	3490	4.69	.37	.45	0	28	100	740	1
MAY 10...	16	3010	3100	4.09	--	.42	0	15	100	650	1
AUG 15...	19	3070	3090	4.18	.01	.47	0	16	--	680	2
05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)											
OCT , 1977 18...	16	4530	4550	6.16	.00	.22	20	20	0	940	3
JAN , 1978 19...	21	4980	5290	6.77	.09	.23	0	28	100	900	3
MAY 09...	9.1	3860	3900	5.25	.03	.16	0	15	100	800	2
AUG 15...	3.0	4420	4230	6.01	.03	.17	0	18	0	900	6

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
17...	0	0	2	10	5	50	0	.0	3	2
JAN , 1978										
18...	10	0	1	30	--	100	520	.0	2	6
MAY										
09...	0	0	0	10	--	50	0	.0	2	0
AUG										
16...	0	2	1	40	--	60	40	.0	3	2

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
18...	0	0	7	40	4	150	20	.0	10	4
MAY , 1978										
10...	0	2	0	60	--	30	10	.0	0	2
AUG										
16...	0	<1	2	10	--	60	60	.0	5	5

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
18...	0	0	5	30	--	120	10	.2	4	6
MAY , 1978										
10...	0	3	2	210	--	40	10	.0	0	1
AUG										
16...	0	<1	3	20	--	60	9	.1	6	3

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
18...	0	0	2	20	5	270	10	.0	3	0
JAN , 1978										
18...	10	0	2	40	8	340	20	.0	5	2
MAY										
10...	0	0	0	30	--	290	20	.0	0	0
AUG										
15...	0	2	1	20	9	300	0	.0	4	3

05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
18...	0	0	2	20	5	280	0	.0	3	0
JAN , 1978										
18...	10	0	1	20	7	350	10	.0	4	3
MAY										
10...	20	2	0	30	14	300	0	.0	2	0
AUG										
15...	0	1	1	20	10	300	0	.0	3	0

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977										
18...	0	0	2	20	15	390	20	.0	3	0
JAN , 1978										
19...	20	0	3	20	8	470	20	.2	2	2
MAY										
09...	2	2	4	30	--	350	10	.0	3	0
AUG										
15...	0	2	1	30	8	410	0	.0	4	4

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056220 - SWEETWATER LAKE AT SWEETWATER, ND (LAT 48 12 37 LONG 098 52 15)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
17...	1630	0	.0	10
JAN , 1978				
18...	0845	0	.0	30
MAY				
09...	1530	0	.0	10
AUG				
16...	1300	0	.0	0

05056250 - LAKE ALICE NR CHURCHS FERRY, ND (LAT 48 21 07 LONG 099 05 42)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
18...	0845	0	.7	20
MAY , 1978				
10...	1215	0	1.0	20
AUG				
16...	1000	0	.4	7

05056260 - LAKE IRVINE NR CHURCHS FERRY, ND (LAT 48 16 57 LONG 099 10 25)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
18...	1100	0	2.6	10
MAY , 1978				
10...	1315	0	1.0	10
AUG				
16...	0850	0	1.6	5

05056500 - DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 04 00 LONG 098 56 07)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
18...	1530	0	1.4	10
JAN , 1978				
18...	1630	0	4.0	10
MAY				
10...	0835	0	1.0	20
AUG				
15...	1430	0	.7	10

05056505 - NARROWS OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 44)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
18...	1500	0	1.4	10
JAN , 1978				
18...	1710	0	4.0	10
MAY				
10...	0915	0	2.0	30
AUG				
15...	1550	0	.0	10

05056506 - MISSION BAY OF DEVILS LAKE NR DEVILS LAKE, ND (LAT 48 01 36 LONG 098 53 43)

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1977				
18...	1630	0	3.5	10
JAN , 1978				
19...	1115	0	6.0	20
MAY				
09...	1700	0	3.0	20
AUG				
15...	1630	0	.0	10

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	TEMPER- ATURE (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	HARD- NESS (MG/L AS CACO3) (00900)	HARD- NESS, NONCAR- BONATE (MG/L CACO3) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
PART 5. HUDSON BAY BASIN											
RED RIVER OF THE NORTH BASIN											
05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)											
OCT , 1977											
17...	1515	27.24	1400.00	9100	9.2	11.0	40	2000	1400	89	440
JAN , 1978											
17...	1530	21.03	1400.00	22000	7.9	-.5	220	4300	2700	190	940
MAY											
09...	1400	22.33	1400.00	10600	8.9	16.0	35	1800	1100	41	400
AUG											
16...	1615	21.58	1400.00	10500	8.5	26.0	55	1700	1000	48	380
05056570 - EAST DEVILS LAKE NR MAMAR, ND (LAT 47 57 02 LONG 098 36 34)											
OCT , 1977											
19...	1000	4.11	1400.00	32000	9.8	7.0	110	5400	4200	31	1300
JAN , 1978											
18...	1530	4.22	1400.00	28400	8.7	-.5	75	5800	4500	11	1400
MAY											
11...	0915	4.88	1400.00	25500	9.0	12.5	100	4600	3700	15	1100
AUG											
17...	0845	4.22	1400.00	31000	9.1	22.0	120	5800	4400	12	1400
05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)											
OCT , 1977											
17...	1215	82.55	1300.00	120000	8.8	8.0	540	41000	40000	180	9900
JAN , 1978											
17...	1300	82.52	1300.00	132000	7.9	-5.5	280	84000	82000	570	20000
MAY											
09...	1045	83.37	1300.00	74000	8.8	8.5	140	21000	20000	110	5000
AUG											
17...	1105	82.41	1300.00	82500	8.5	22.0	110	43000	42000	80	10300
05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)											
OCT , 1977											
17...	1330	97.28	1300.00	28000	9.3	8.0	80	5700	5100	150	1300
JAN , 1978											
17...	1415	96.23	1300.00	80000	7.9	-2.5	280	39000	36000	640	9000
MAY											
09...	1230	97.45	1300.00	13500	9.2	10.5	45	2300	1900	30	540
AUG											
17...	1225	96.61	1300.00	20000	9.1	20.5	100	1200	890	35	270
PART 6. MISSOURI RIVER BASIN											
JAMES RIVER BASIN											
06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)											
OCT , 1977											
06...	1030	28.70	1400.00	620	8.3	12.0	27	210	0	41	25
JAN , 1978											
05...	0900	28.68	1400.00	640	7.8	1.0	9	260	23	55	30
APR											
13...	0840	30.45	1400.00	580	8.2	2.5	9	240	8	49	28
JUL											
05...	1530	32.96	1400.00	550	8.3	26.0	25	200	14	40	25

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 17...	1800	63	17	220	640	54	610	.8	4100	940	.1
JAN , 1978 17...	4200	65	28	480	2050	0	1680	81	9200	2100	.1
MAY 09...	2000	68	21	240	620	72	630	1.5	4200	9800	.1
AUG 16...	2500	73	27	240	710	30	630	3.9	4600	1100	.1

05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 19...	7300	72	43	620	1140	170	1220	.4	16000	3000	.0
JAN , 1978 18...	8000	72	46	750	1300	130	1280	5.0	17000	3000	.1
MAY 11...	6300	75	41	8.6	710	180	880	1.7	13000	2300	.4
AUG 17...	7300	70	42	700	1240	210	1370	2.1	14000	3100	.0

05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 17...	28000	58	60	2100	1130	100	1090	3.4	73000	18000	.1
JAN , 1978 17...	12000	23	18	4300	2190	0	1800	44	64000	33000	.1
MAY 09...	28000	73	84	1100	390	160	590	1.8	65000	10000	--
AUG 17...	49000	70	103	2300	810	160	930	5.7	--	21000	.2

05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 17...	5800	67	33	350	660	74	660	.6	14000	2600	.1
JAN , 1978 17...	18000	49	40	1300	3280	0	2690	66	48000	18000	.5
MAY 09...	2700	70	25	170	280	80	360	.4	6200	1200	.1
AUG 17...	5300	88	67	270	370	6	310	.5	9500	2100	.0

PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT , 1977 06...	54	35	1.6	12	270	0	220	2.2	94	12	.2
JAN , 1978 05...	53	29	1.4	12	290	--	240	7.4	100	15	.2
APR 13...	49	30	1.4	12	280	0	230	2.8	100	13	.2
JUL 05...	49	33	1.5	11	230	0	190	1.8	95	19	.1

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
PART 5. HUDSON BAY BASIN											
RED RIVER OF THE NORTH BASIN											
05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 58)											
OCT , 1977 17...	1.7	7810	7960	10.6	.00	.13	20	24	0	1700	1
JAN , 1978 17...	35	17400	18200	23.7	.16	1.9	10	170	100	3200	3
MAY 09...	9.2	8310	8250	11.3	--	.07	0	18	0	1700	1
AUG 16...	12	8820	9260	12.0	.01	.05	0	32	200	1800	1
05056570 - EAST DEVILS LAKE NR MAMAR, ND (LAT 47 57 02 LONG 098 36 34)											
OCT , 1977 19...	.9	29500	29000	40.1	.24	.11	10	90	200	400	--
JAN , 1978 18...	15	30700	31000	41.8	2.1	.03	0	160	200	4300	2
MAY 11...	11	24900	23300	33.9	--	.05	0	65	100	3200	--
AUG 17...	1.8	28900	27400	39.3	3.1	.09	0	100	100	4100	0
05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)											
OCT , 1977 17...	11	142000	132000	193	.02	.23	30	90	400	17000	--
JAN , 1978 17...	20	157000	135000	214	.06	.96	0	500	500	35000	4
MAY 09...	--	44800	--	60.9	.00	.17	0	110	100	9900	0
AUG 17...	9.6	204000	--	--	14	1.2	0	130	200	16000	0
05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)											
OCT , 1977 17...	8.6	25100	24600	34.1	.02	.07	30	40	200	3800	1
JAN , 1978 17...	37	92300	96600	126	.07	1.4	10	380	400	22000	--
MAY 09...	6.4	11000	11100	15.0	.00	.03	0	15	100	1600	1
AUG 17...	20	18500	17700	25.2	.08	.12	0	32	200	2400	1
PART 6. MISSOURI RIVER BASIN											
JAMES RIVER BASIN											
06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 30)											
OCT , 1977 06...	14	393	390	.53	.50	.06	20	3	300	150	0
JAN , 1978 05...	13	418	424	.57	.65	.09	--	--	--	160	--
APR 13...	12	404	405	.55	.68	.03	0	3	0	150	0
JUL 05...	5.9	353	360	.48	.27	.04	--	--	--	140	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977 17...	10	0	2	20	10	640	20	.0	4	0
JAN , 1978 17...	20	0	0	200	6	18000	1400	--	0	4
MAY 09...	20	0	0	40	6	690	20	.0	0	0
AUG 16...	10	0	0	470	--	750	40	.0	2	4

05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977 19...	16	0	3	70	--	2600	60	.4	5	2
JAN , 1978 18...	30	0	2	120	2	2800	260	.0	3	0
MAY 11...	40	4	25	30	--	2100	80	.0	3	4
AUG 17...	30	0	1	140	5	3000	60	.1	6	3

05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977 17...	140	0	1	130	--	14000	190	.0	9	2
JAN , 1978 17...	140	0	0	740	--	32000	920	.0	2	0
MAY 09...	90	1	1	110	4	8500	230	.0	2	2
AUG 17...	120	0	0	100	5	13000	190	.0	1	3

05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 48 LONG 098 23 26)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977 17...	20	0	1	50	--	440	30	.0	13	5
JAN , 1978 17...	100	0	0	2300	--	13000	3200	.0	30	24
MAY 09...	30	2	0	40	4	880	20	.0	9	3
AUG 17...	20	0	1	560	--	1400	20	.0	3	5

PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 38)

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)
OCT , 1977 06...	0	0	0	0	2	30	1200	.0	3	4
JAN , 1978 05...	--	--	--	--	--	--	--	--	--	--
APR 13...	0	0	0	10	3	40	370	.0	3	2
JUL 05..	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
PART 5. HUDSON BAY BASIN				
RED RIVER OF THE NORTH BASIN				
05056565 - EAST BAY OUTLET OF DEVILS LAKE NR CRARY, ND (LAT 48 00 13 LONG 098 41 50)				
OCT , 1977 17...	1515	0	15	10
JAN , 1978 17...	1530	0	6.0	40
AUG 16...	1615	0	8.2	20
05056570 - EAST DEVILS LAKE NR HAMAR, ND (LAT 47 57 02 LONG 098 36 34)				
OCT , 1977 19...	1000	0	20	40
JAN , 1978 18...	1530	0	20	60
MAY 11...	0915	0	22	50
AUG 17...	0845	0	100	50
05056630 - EASTERN STUMP LAKE NR LAKOTA, ND (LAT 47 52 04 LONG 098 21 33)				
OCT , 1977 17...	1215	0	140	110
JAN , 1978 17...	1300	0	550	200
MAY 09...	1045	0	230	190
AUG 17...	1105	0	200	140
05056670 - WESTERN STUMP LAKE NR LAKOTA, ND (LAT 47 54 40 LONG 098 23 26)				
OCT , 1977 17...	1330	0	22	30
JAN , 1978 17...	1415	0	130	160
MAY 09...	1230	0	6.0	4
AUG 17...	1225	0	14	30
PART 6. MISSOURI RIVER BASIN				
JAMES RIVER BASIN				
06469000 - JAMESTOWN RESERVOIR NR JAMESTOWN, ND (LAT 46 56 03 LONG 098 42 30)				
OCT , 1977 06...	1030	0	.0	0
APR , 1978 13...	0840	0	.0	0
JUL 05...	1530	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

473832098222700 RED WILLOW LAKE (SHALLOW) NEAR BINFORD, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
FEB										
17...	1520	--	5.6	--	--	-13.5	0	270	7.0	728
17...	1521	3.3	--	767	8.2	--	--	--	--	--
17...	1522	5.6	--	777	8.0	--	--	--	--	--
MAY										
16...	1755	--	6.6	--	--	19.0	--	135	25	719
16...	1756	3.3	--	591	8.6	--	--	--	--	--
16...	1758	6.6	--	--	--	--	--	--	--	--
16...	1958	6.6	--	592	8.6	--	--	--	--	--
AUG										
23...	1154	--	6.6	--	--	19.0	100	45	5.0	719
23...	1155	.0	--	582	9.1	--	--	--	--	--
23...	1156	3.3	--	580	9.0	--	--	--	--	--
23...	1157	6.6	--	581	8.9	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
FEB									
17...	--	90	--	--	--	--	--	--	--
17...	.1	--	7.7	56	.21	.06	.03	0.000	0.000
17...	.1	--	7.4	54	--	--	--	--	--
MAY									
16...	--	78	--	--	--	--	--	--	--
16...	15.7	--	9.2	97	.01	.00	.01	6.05	0.000
16...	--	--	--	97	--	--	--	--	--
16...	15.8	--	9.2	--	--	--	--	--	--
AUG									
23...	--	55	--	--	--	--	--	--	--
23...	19.5	--	7.9	90	--	--	--	--	--
23...	19.4	--	7.9	90	.00	.02	.01	31.6	0.000
23...	19.3	--	7.9	89	--	--	--	--	--

473859098222100 RED WILLOW LAKE (DEEP) NEAR BINFORD, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)
FEB											
17...	1100	--	21	44.19	1418.34	805	7.8	-15.0	0	315	12
17...	1101	3.3	--	--	1418.34	766	8.2	--	--	--	--
17...	1102	6.6	--	--	1418.34	772	8.1	--	--	--	--
17...	1104	13	--	--	1418.34	786	8.0	--	--	--	--
17...	1106	19	--	--	1418.34	909	7.9	--	--	--	--
17...	1108	21	--	--	1418.34	932	7.7	--	--	--	--
MAY											
16...	1600	--	23	44.98	1418.34	--	--	19.0	--	135	25
16...	1601	3.3	--	--	1418.34	592	8.6	--	--	--	--
16...	1603	6.6	--	--	1418.34	592	8.6	--	--	--	--
16...	1604	13	--	--	1418.34	592	8.6	--	--	--	--
16...	1605	19	--	--	1418.34	592	8.6	--	--	--	--
16...	1606	23	--	--	1418.34	592	8.6	--	--	--	--
AUG											
23...	0930	--	19	43.81	1418.34	581	--	17.5	100	135	5.0
23...	0931	.0	--	--	1418.34	583	8.6	--	--	--	--
23...	0932	1.6	--	--	1418.34	582	8.6	--	--	--	--
23...	0933	3.3	--	--	1418.34	582	8.6	--	--	--	--
23...	0934	6.6	--	--	1418.34	581	8.6	--	--	--	--
23...	0935	13	--	--	1418.34	581	8.6	--	--	--	--
23...	0936	19	--	--	1418.34	579	8.6	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

473859098222100 RED WILLOW LAKE (DEEP) NEAR BINFORD, ND--Continued

DATE	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
FEB											
17...	726	--	56	--	--	390	83	56	61	22	10
17...	--	.0	--	7.3	52	--	--	--	--	--	--
17...	--	.5	--	6.8	49	--	--	--	--	--	--
17...	--	1.1	--	3.9	29	--	--	--	--	--	--
17...	--	2.5	--	.1	0	--	--	--	--	--	--
17...	--	2.9	--	.1	0	--	--	--	--	--	--
MAY											
16...	719	--	73	--	--	--	--	--	--	--	--
16...	--	15.9	--	9.3	100	--	--	--	--	--	--
16...	--	16.0	--	9.4	101	--	--	--	--	--	--
16...	--	16.0	--	9.2	99	--	--	--	--	--	--
16...	--	15.7	--	8.9	95	--	--	--	--	--	--
16...	--	15.7	--	9.0	96	--	--	--	--	--	--
AUG											
23...	719	8.8	58	--	--	290	62	41	45	15	10
23...	--	19.3	--	7.6	86	--	--	--	--	--	--
23...	--	19.3	--	7.6	86	--	--	--	--	--	--
23...	--	19.3	--	7.5	85	--	--	--	--	--	--
23...	--	19.3	--	7.5	85	--	--	--	--	--	--
23...	--	19.2	--	6.8	77	--	--	--	--	--	--
23...	--	18.8	--	6.3	77	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
FEB										
17...	.5	19	376	0	308	9.5	130	9.4	.2	48
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	.4	15	275	0	226	--	110	6.4	.1	26
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
FEB										
17...	548	531	--	--	--	190	20	100	--	--
17...	--	--	.07	.07	.04	--	--	--	0.400	0.000
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	.18	.07	.04	--	--	--	--	--
17...	--	--	.05	.11	.07	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
MAY										
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	.02	.02	.01	--	--	--	6.22	0.000
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	411	394	--	--	--	0	0	0	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	.00	.04	.01	--	--	--	26.8	0.000
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

481058098031500 WHITMAN RESERVOIR (DEEP) NEAR WHITMAN, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)
FEB											
22...	1300	--	23	35.71	1508.48	965	8.0	-2.5	25	315	20
22...	1301	3.3	--	--	1508.48	936	8.2	--	--	--	--
22...	1302	6.6	--	--	1508.48	967	8.3	--	--	--	--
22...	1303	13	--	--	1508.48	966	8.1	--	--	--	--
22...	1304	19	--	--	1508.48	967	8.1	--	--	--	--
22...	1305	23	--	--	1508.48	981	7.9	--	--	--	--
MAY											
18...	1200	--	24	--	1508.48	--	--	21.0	40	135	10
18...	1201	3.3	--	--	1508.48	454	9.1	--	--	--	--
18...	1203	6.6	--	--	1508.48	462	9.1	--	--	--	--
18...	1204	13	--	--	1508.48	465	8.9	--	--	--	--
18...	1205	19	--	--	1508.48	468	8.5	--	--	--	--
18...	1206	24	--	--	1508.48	472	8.2	--	--	--	--
AUG											
24...	1000	--	19	35.55	1508.48	51	9.2	19.0	--	225	3.0
24...	1001	.0	--	--	1508.48	490	9.5	--	--	--	--
24...	1002	1.6	--	--	1508.48	502	9.5	--	--	--	--
24...	1003	3.3	--	--	1508.48	502	9.5	--	--	--	--
24...	1004	6.6	--	--	1508.48	504	9.4	--	--	--	--
24...	1005	13	--	--	1508.48	504	9.4	--	--	--	--
24...	1006	16	--	--	1508.48	518	9.2	--	--	--	--
24...	1007	19	--	--	1508.48	507	9.4	--	--	--	--

DATE	BAROMETRIC PRESSURE (MM OF HG) (00025)	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
FEB											
22...	726	--	149	--	--	360	86	86	35	81	32
22...	--	.5	--	5.7	41	--	--	--	--	--	--
22...	--	2.6	--	5.2	40	--	--	--	--	--	--
22...	--	3.3	--	4.1	32	--	--	--	--	--	--
22...	--	3.3	--	4.0	32	--	--	--	--	--	--
22...	--	3.7	--	2.8	22	--	--	--	--	--	--
MAY											
18...	720	--	36	--	--	--	--	--	--	--	--
18...	--	15.5	--	14.0	148	--	--	--	--	--	--
18...	--	15.2	--	13.2	138	--	--	--	--	--	--
18...	--	14.8	--	12.0	124	--	--	--	--	--	--
18...	--	14.0	--	10.3	105	--	--	--	--	--	--
18...	--	13.5	--	7.2	73	--	--	--	--	--	--
AUG											
24...	725	--	20	--	--	210	47	52	20	41	29
24...	--	18.2	--	10.0	110	--	--	--	--	--	--
24...	--	18.0	--	9.1	101	--	--	--	--	--	--
24...	--	17.8	--	8.4	87	--	--	--	--	--	--
24...	--	17.7	--	7.0	76	--	--	--	--	--	--
24...	--	17.6	--	6.3	69	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	17.5	--	4.2	46	--	--	--	--	--	--

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
FEB											
22...	1.9	8.0	333	0	273	5.3	230	22	.2	5.7	655
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	1.2	5.2	199	--	163	.2	110	11	.2	11	346
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)

RED RIVER OF THE NORTH BASIN

481058098031500 WHITMAN RESERVOIR (DEEP) NEAR WHITMAN, ND--Continued

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)
FEB										
22...	634	.89	--	--	--	240	60	1300	--	--
22...	--	--	.03	.21	.12	--	--	--	0.000	0.000
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	.02	.05	.03	--	--	--	60.1	0.000
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
AUG										
24...	351	.47	--	--	--	0	0	0	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	.00	.30	.28	--	--	--	64.4	0.000
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	.00	.33	.29	--	--	--	--	--
24...	--	--	.01	.33	.35	--	--	--	--	--

481139098044200 WHITMAN RESERVOIR (SHALLOW) NEAR WHITMAN, ND

DATE	TIME	SAMP- LING DEPTH (FT) (00003)	RESER- VOIR DEPTH (FEET) (72025)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	TEMPER- ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER- CENT) (00032)	WIND DIREC- TION (DEG, FROM TRUE NORTH) (00036)	WIND VELOC- ITY (MILES PER HOUR) (00035)	BARO- METRIC PRES- SURE (MM OF HG) (00025)
FEB										
22...	1800	--	9.9	--	--	-2.5	30	315	15	720
22...	1801	3.3	--	1020	8.3	--	--	--	--	--
22...	1802	6.6	--	993	8.5	--	--	--	--	--
22...	1803	9.9	--	995	8.4	--	--	--	--	--
MAY										
18...	1400	--	276	--	--	24.0	90	135	15	720
18...	1402	3.3	--	466	9.6	--	--	--	--	--
18...	1403	6.6	--	464	9.6	--	--	--	--	--
18...	1404	8.2	--	465	9.6	--	--	--	--	--
AUG										
24...	1250	--	9.9	--	--	24.0	60	735	7.5	724
24...	1300	.0	--	480	9.7	--	--	--	--	--
24...	1301	3.3	--	496	9.7	--	--	--	--	--
24...	1302	6.6	--	501	9.7	--	--	--	--	--
24...	1303	9.9	--	500	9.6	--	--	--	--	--

DATE	TEMPER- ATURE (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)
FEB									
22...	--	54	--	--	--	--	--	--	--
22...	.0	--	11.7	84	.01	.10	.10	--	--
22...	.9	--	9.4	70	--	--	--	--	--
22...	1.2	--	8.8	66	--	--	--	--	--
MAY									
18...	--	--	--	--	--	--	--	--	--
18...	18.8	--	18.2	206	--	--	--	--	--
18...	18.5	--	17.5	192	--	--	--	--	--
18...	18.4	--	17.6	193	--	--	--	--	--
AUG									
24...	--	18	--	--	--	--	--	--	--
24...	19.3	--	11.6	133	--	--	--	--	--
24...	18.6	--	11.8	133	.01	.28	.28	67.1	0.000
24...	18.6	--	10.7	121	--	--	--	--	--
24...	18.6	--	10.4	117	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

481312097573000 MATECJEK RESERVOIR (SHALLOW) NEAR DAHLEN, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
FEB										
23...	1420	--	9.9	--	--	-5.0	35	--	.0	728
23...	1421	3.3	--	684	8.8	--	--	--	--	--
23...	1422	6.6	--	685	8.8	--	--	--	--	--
23...	1423	9.9	--	693	8.8	--	--	--	--	--
MAY										
18...	1955	--	4.9	--	--	25.0	95	45	5.0	725
18...	1956	3.3	--	525	9.2	--	--	--	--	--
18...	1958	4.9	--	574	9.5	--	--	--	--	--
AUG										
25...	1220	--	50	--	--	23.5	95	22	7.5	728
25...	1225	.0	--	568	8.6	--	--	--	--	--
25...	1226	3.3	--	568	8.5	--	--	--	--	--
25...	1227	5.0	--	590	8.4	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
FEB									
23...	--	49	--	--	--	--	--	--	--
23...	4.0	--	11.4	91	.03	.04	.01	2.77	0.000
23...	.5	--	10.7	77	--	--	--	--	--
23...	.7	--	10.0	73	--	--	--	--	--
MAY									
18...	--	48	--	--	--	--	--	--	--
18...	20.0	--	17.7	203	.00	.02	.01	53.0	0.000
18...	18.6	--	15.8	165	--	--	--	--	--
AUG									
25...	--	49	--	--	--	--	--	--	--
25...	20.9	--	8.1	95	--	--	--	--	--
25...	20.7	--	7.6	88	.01	.13	.11	5.05	0.280
25...	21.0	--	7.6	88	--	--	--	--	--

481334097553300 MATECJEK RESERVOIR (DEEP) NEAR DAHLEN, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)
FEB											
23...	1000	3.3	35	47.10	1306.70	695	8.3	-10.5	35	270	7.0
23...	1001	3.3	--	--	1306.70	670	8.8	--	--	--	--
23...	1002	6.6	--	--	1306.70	678	8.8	--	--	--	--
23...	1003	13	--	--	1306.70	679	8.8	--	--	--	--
23...	1004	19	--	--	1306.70	681	8.7	--	--	--	--
23...	1005	26	--	--	1306.70	681	8.5	--	--	--	--
23...	1006	33	--	--	1306.70	683	8.3	--	--	--	--
23...	1007	34	--	--	1306.70	687	7.8	--	--	--	--
23...	1008	--	--	--	1306.70	700	8.1	--	--	--	--
23...	1010	--	--	--	1306.70	680	8.0	--	--	--	--
MAY											
18...	1740	--	36	48.05	1306.70	--	--	27.0	90	135	15
18...	1741	3.3	--	--	1306.70	560	9.0	--	--	--	--
18...	1742	3.3	--	--	1306.70	--	--	--	--	--	--
18...	1743	6.6	--	--	1306.70	554	8.8	--	--	--	--
18...	1744	13	--	--	1306.70	555	8.6	--	--	--	--
18...	1745	19	--	--	1306.70	559	8.1	--	--	--	--
18...	1746	26	--	--	1306.70	588	7.8	--	--	--	--
18...	1747	33	--	--	1306.70	625	7.8	--	--	--	--
18...	1748	26	--	--	1306.70	600	7.7	--	--	--	--
18...	1749	36	--	--	1306.70	--	--	--	--	--	--
18...	1751	36	--	--	1306.70	645	7.6	--	--	--	--
AUG											
25...	0925	.0	37	47.56	1306.70	558	8.5	22.0	60	--	.0
25...	0926	1.6	--	--	1306.70	559	8.5	--	--	--	--
25...	0927	3.3	--	--	1306.70	570	8.6	--	--	--	--
25...	0928	6.6	--	--	1306.70	562	8.6	--	--	--	--
25...	0929	13	--	--	1306.70	562	7.6	--	--	--	--
25...	0930	19	--	--	1306.70	564	8.4	--	--	--	--
25...	0931	26	--	--	1306.70	571	7.8	--	--	--	--
25...	0932	33	--	--	1306.70	589	7.2	--	--	--	--
25...	0934	36	--	--	1306.70	624	7.7	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

481334097553300 MATECJEK RESERVOIR (DEEP) NEAR DAHLEN, ND--Continued

DATE	BAROMETRIC PRESSURE (MM OF HG) (00025)	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
FEB											
23...	726	--	137	--	--	260	46	65	24	50	29
23...	--	.2	--	9.4	67	--	--	--	--	--	--
23...	--	.7	--	8.9	70	--	--	--	--	--	--
23...	--	1.2	--	7.8	58	--	--	--	--	--	--
23...	--	1.9	--	6.4	49	--	--	--	--	--	--
23...	--	2.4	--	4.2	32	--	--	--	--	--	--
23...	--	2.8	--	2.8	22	--	--	--	--	--	--
23...	--	2.9	--	2.7	21	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	724	--	31	--	--	--	--	--	--	--	--
18...	--	16.0	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	140	--	--	--	--	--	--
18...	--	14.6	--	11.4	117	--	--	--	--	--	--
18...	--	13.0	--	10.0	99	--	--	--	--	--	--
18...	--	9.7	--	7.3	67	--	--	--	--	--	--
18...	--	5.5	--	4.6	38	--	--	--	--	--	--
18...	--	4.5	--	2.7	22	--	--	--	--	--	--
18...	--	5.5	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	20	--	--	--	--	--	--
18...	--	4.5	--	--	--	--	--	--	--	--	--
AUG											
25...	726	19.8	60	9.3	106	240	69	54	26	40	26
25...	--	19.9	--	9.3	106	--	--	--	--	--	--
25...	--	19.8	--	9.1	104	--	--	--	--	--	--
25...	--	19.7	--	8.8	100	--	--	--	--	--	--
25...	--	18.7	--	8.5	94	--	--	--	--	--	--
25...	--	18.5	--	6.6	73	--	--	--	--	--	--
25...	--	15.4	--	.1	1	--	--	--	--	--	--
25...	--	9.2	--	.1	1	--	--	--	--	--	--
25...	--	9.0	--	.1	1	--	--	--	--	--	--

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
FEB											
23...	1.3	6.6	262	0	215	2.1	150	13	.2	2.0	471
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	1.1	5.7	211	0	173	.9	140	10	.1	8.0	301
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

RED RIVER OF THE NORTH BASIN

481334097553300 MATECJEK RESERVOIR (DEEP) NEAR DAHLEN, ND--Continued

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
FEB										
23...	442	.60	--	--	--	240	40	1400	--	--
23...	--	--	.09	.05	.02	--	--	--	2.35	0.000
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	.14	.06	.03	--	--	--	--	--
23...	--	--	.17	.07	.04	--	--	--	--	--
MAY										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	.15	.01	.00	--	--	--	49.9	0.000
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	.66	.12	.05	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	.58	.11	.08	--	--	--	--	--
AUG										
25...	390	.52	--	--	--	280	60	2300	--	--
25...	--	--	.00	.11	.09	--	--	--	23.5	0.000
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	.01	.14	.13	--	--	--	--	--
25...	--	--	.00	.58	.58	--	--	--	--	--

MISSOURI RIVER MAIN STEM

06332510 LAKE SAKAKAWEA NEAR NEW TOWN, ND

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)
OCT								
18...	0915	.0	65	35.00	1800.00	668	8.6	11.0
18...	0916	1.6	--	--	1800.00	667	8.6	--
18...	0917	6.6	--	--	1800.00	665	8.7	--
18...	0918	16	--	--	1800.00	666	8.7	--
18...	0919	26	--	--	1800.00	667	8.8	--
18...	0920	32	--	--	1800.00	666	8.9	--
18...	0921	42	--	--	1800.00	671	9.0	--
18...	0922	60	--	--	1800.00	672	9.2	--
FEB								
14...	1040	.0	53	27.00	--	800	8.3	-17.5
14...	1041	1.6	--	--	1800.00	820	8.3	--
14...	1042	6.6	--	--	1800.00	820	8.3	--
14...	1043	16	--	--	1800.00	820	8.4	--
14...	1044	32	--	--	1800.00	850	8.3	--
14...	1045	53	--	--	1800.00	860	7.8	--
MAY								
03...	1042	.0	64	36.00	--	550	7.9	16.0
03...	1044	1.6	--	--	1800.00	550	7.9	--
03...	1046	6.6	--	--	1800.00	550	7.9	--
03...	1048	16	--	--	1800.00	550	7.9	--
03...	1050	32	--	--	1800.00	550	7.9	--
03...	1052	61	--	--	1800.00	550	7.9	--
JUL								
06...	0836	.0	70	48.20	--	575	8.4	19.5
06...	0837	1.6	--	--	1800.00	577	8.4	--
06...	0838	6.6	--	--	1800.00	578	8.4	--
06...	0839	16	--	--	1800.00	577	8.5	--
06...	0840	33	--	--	1800.00	541	8.5	--
06...	0841	66	--	--	1800.00	675	8.0	--
20...	1415	.0	81	--	1800.00	566	8.6	28.0
20...	1420	1.6	--	--	1800.00	567	8.6	--
20...	1425	6.6	--	--	1800.00	593	8.6	--
20...	1430	16	--	--	1800.00	567	8.4	--
20...	1435	33	--	--	1800.00	585	8.4	--
20...	1440	66	--	--	1800.00	694	8.1	--
20...	1445	78	--	--	1800.00	694	8.1	--
AUG								
16...	0937	.0	81	48.40	--	572	8.3	23.0
16...	0939	1.6	--	--	1800.00	572	8.3	--
16...	0941	6.6	--	--	1800.00	572	8.4	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)

MISSOURI RIVER MAIN STEM

06332510 LAKE SAKAKAWEA NEAR NEW TOWN, ND--Continued

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
AUG								
16...	0943	16	1800.00	571	8.4	21.7	7.9	95
16...	0945	33	1800.00	566	8.3	21.3	7.8	94
16...	0947	66	1800.00	662	7.8	14.3	4.0	42

DATE	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG. FROM TRUE NORTH) (00036)	WIND VELOC-ITY (MILES PER HOUR) (00035)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT								
18...	--	135	5.0	--	10.0	--	10.3	--
18...	--	--	--	--	10.0	--	10.3	--
18...	--	--	--	--	10.0	--	10.3	--
18...	--	--	--	--	10.0	--	10.2	--
18...	--	--	--	--	10.0	--	10.3	--
18...	--	--	--	--	9.5	--	10.2	--
18...	--	--	--	--	9.5	--	10.4	--
18...	--	--	--	--	9.5	--	10.6	--
FEB								
14...	70	270	5.0	719	.0	32	11.8	85
14...	--	--	--	--	.0	--	11.8	85
14...	--	--	--	--	.0	--	11.8	85
14...	--	--	--	--	.6	--	12.2	88
14...	--	--	--	--	.6	--	10.4	76
14...	--	--	--	--	1.3	--	7.9	59
MAY								
03...	10	180	7.5	705	4.6	15	11.1	93
03...	--	--	--	--	4.6	--	11.1	93
03...	--	--	--	--	4.6	--	11.1	93
03...	--	--	--	--	4.6	--	11.0	92
03...	--	--	--	--	4.5	--	11.0	92
03...	--	--	--	--	4.5	--	11.0	92
JUL								
06...	90	270	10	713	21.6	76	8.6	106
06...	--	--	--	--	21.6	--	8.5	101
06...	--	--	--	--	21.6	--	8.4	101
06...	--	--	--	--	21.6	--	8.3	100
06...	--	--	--	--	21.4	--	8.3	100
06...	--	--	--	--	11.3	--	7.2	87
20...	80	45	2.0	710	26.2	62	7.9	96
20...	--	--	--	--	24.5	--	8.5	93
20...	--	--	--	--	22.5	--	8.3	98
20...	--	--	--	--	21.1	--	7.0	120
20...	--	--	--	--	20.1	--	6.7	127
20...	--	--	--	--	10.2	--	6.5	162
20...	--	--	--	--	10.2	--	6.4	165
AUG								
16...	2	90	5.0	707	21.8	91	8.3	104
16...	--	--	--	--	21.8	--	8.3	100
16...	--	--	--	--	21.8	--	8.0	97

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)
MISSOURI RIVER MAIN STEM								
06337995 LAKE SAKAKAWEA AT RIVERDALE, ND								
OCT								
19...	1055	.0	166	35.00	1800.00	650	8.5	--
19...	1056	6.6	--	--	1800.00	650	8.5	--
19...	1057	12	--	--	1800.00	650	8.5	--
19...	1058	33	--	--	1800.00	650	8.5	--
19...	1059	66	--	--	1800.00	655	8.5	--
19...	1100	98	--	--	1800.00	655	8.5	--
19...	1101	131	--	--	1800.00	655	8.5	--
19...	1102	158	--	--	1800.00	--	8.5	--
FEB								
13...	1659	--	143	27.00	1800.00	--	--	-10.0
13...	1700	.0	--	--	--	730	8.6	--
13...	1701	1.6	--	--	1800.00	730	8.6	--
13...	1702	6.6	--	--	1800.00	730	8.6	--
13...	1703	16	--	--	1800.00	740	8.6	--
13...	1704	32	--	--	1800.00	730	8.6	--
13...	1705	65	--	--	1800.00	720	8.6	--
13...	1706	98	--	--	1800.00	730	8.5	--
13...	1707	131	--	--	1800.00	750	8.2	--
13...	1708	143	--	--	1800.00	810	7.8	--
MAY								
02...	1310	.1	157	36.10	--	680	8.1	22.0
02...	1311	1.6	--	--	1800.00	680	8.1	--
02...	1312	6.6	--	--	1800.00	680	8.2	--
02...	1313	16	--	--	1800.00	680	8.2	--
02...	1314	32	--	--	1800.00	680	8.2	--
02...	1315	65	--	--	1800.00	680	8.2	--
02...	1316	98	--	--	1800.00	680	8.2	--
02...	1317	131	--	--	1800.00	700	8.2	--
JUL								
11...	1131	.0	149	48.60	--	654	8.2	24.0
11...	1132	1.6	--	--	1800.00	654	8.3	--
11...	1133	6.6	--	--	1800.00	654	8.3	--
11...	1134	16	--	--	1800.00	654	8.3	--
11...	1135	33	--	--	1800.00	650	8.3	--
11...	1136	66	--	--	1800.00	650	8.3	--
11...	1137	99	--	--	1800.00	654	8.3	--
11...	1138	138	--	--	1800.00	655	8.3	--
21...	1240	.0	173	--	1800.00	693	8.6	29.0
21...	1245	1.6	--	--	1800.00	694	8.6	--
21...	1250	6.6	--	--	1800.00	688	8.6	--
21...	1255	16	--	--	1800.00	687	8.6	--
21...	1300	32	--	--	1800.00	688	8.5	--
21...	1305	65	--	--	1800.00	672	8.4	--
21...	1310	98	--	--	1800.00	665	8.4	--
21...	1315	131	--	--	1800.00	669	8.4	--
21...	1320	152	--	--	1800.00	672	8.4	--
AUG								
15...	1111	.0	169	48.60	--	664	8.4	22.5
15...	1113	1.6	--	--	1800.00	664	8.5	--
15...	1115	6.6	--	--	1800.00	664	8.5	--
15...	1117	16	--	--	1800.00	664	8.5	--
15...	1119	33	--	--	1800.00	664	8.5	--
15...	1121	66	--	--	1800.00	660	8.5	--
15...	1123	99	--	--	1800.00	650	8.2	--
15...	1125	132	--	--	1800.00	650	8.2	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MISSOURI RIVER MAIN STEM

06337995 LAKE SAKAKAWEA AT RIVERDALE, ND--Continued

DATE	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG. FROM TRUE NORTH) (00036)	WIND VELOC-ITY (MILES PER HOUR) (00035)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT								
19...	5	180	5.0	--	11.0	96	9.8	--
19...	--	--	--	--	11.0	--	9.8	--
19...	--	--	--	--	11.0	--	9.8	--
19...	--	--	--	--	11.0	--	9.8	--
19...	--	--	--	--	11.0	--	9.9	--
19...	--	--	--	--	11.0	--	9.9	--
19...	--	--	--	--	11.0	--	9.9	--
19...	--	--	--	--	11.0	--	9.9	--
FEB								
13...	80	45	5.0	--	--	91	--	--
13...	--	--	--	719	.6	--	13.9	103
13...	--	--	--	--	.7	--	13.9	105
13...	--	--	--	--	.7	--	13.7	103
13...	--	--	--	--	.7	--	13.7	103
13...	--	--	--	--	.7	--	13.7	103
13...	--	--	--	--	.9	--	12.9	97
13...	--	--	--	--	1.2	--	12.5	94
13...	--	--	--	--	2.7	--	8.0	63
13...	--	--	--	--	3.1	--	6.2	49
MAY								
02...	30	180	10	710	3.0	254	11.6	92
02...	--	--	--	--	3.0	--	11.6	92
02...	--	--	--	--	3.0	--	12.0	95
02...	--	--	--	--	3.0	--	10.6	84
02...	--	--	--	--	2.7	--	10.5	85
02...	--	--	--	--	2.7	--	10.4	83
02...	--	--	--	--	2.7	--	10.1	83
02...	--	--	--	--	2.5	--	11.2	88
JUL								
11...	35	135	15	707	19.9	55	10.2	120
11...	--	--	--	--	19.9	--	10.5	124
11...	--	--	--	--	19.9	--	8.2	96
11...	--	--	--	--	19.8	--	8.8	106
11...	--	--	--	--	15.5	--	8.5	91
11...	--	--	--	--	13.4	--	8.4	86
11...	--	--	--	--	8.8	--	9.5	87
11...	--	--	--	--	7.1	--	8.9	78
21...	0	225	5.0	713	21.8	143	9.1	90
21...	--	--	--	--	21.8	--	9.0	91
21...	--	--	--	--	21.3	--	9.1	92
21...	--	--	--	--	20.3	--	8.8	97
21...	--	--	--	--	18.9	--	8.3	105
21...	--	--	--	--	11.8	--	8.9	113
21...	--	--	--	--	6.6	--	8.3	138
21...	--	--	--	--	5.9	--	8.4	138
21...	--	--	--	--	5.5	--	8.5	138
AUG								
15...	70	315	5.0	709	21.8	240	8.3	101
15...	--	--	--	--	21.8	--	8.3	101
15...	--	--	--	--	21.8	--	8.1	99
15...	--	--	--	--	21.8	--	8.2	100
15...	--	--	--	--	21.8	--	8.1	99
15...	--	--	--	--	20.9	--	7.8	95
15...	--	--	--	--	9.9	--	8.1	77
15...	--	--	--	--	8.5	--	8.4	77

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

TURTLE CREEK BASIN

473206100434400 BRUSH LAKE (DEEP) NEAR MERCER, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
MAR											
02...	1345	--	20	30.00	--	--	-7.0	100	0	10	720
02...	1348	--	--	--	1480	8.4	--	--	--	--	--
02...	1349	3.3	--	--	--	--	--	--	--	--	--
02...	1350	6.6	--	--	1345	8.7	--	--	--	--	--
02...	1351	13	--	--	1440	8.6	--	--	--	--	--
02...	1352	19	--	--	1460	8.3	--	--	--	--	--
MAY											
04...	1400	--	21	--	--	--	15.5	100	180	10	707
04...	1410	.0	--	--	960	8.8	--	--	--	--	--
04...	1411	1.6	--	--	960	8.8	--	--	--	--	--
04...	1412	3.3	--	--	960	8.8	--	--	--	--	--
04...	1413	6.6	--	--	960	8.8	--	--	--	--	--
04...	1414	19	--	--	960	8.8	--	--	--	--	--
AUG											
18...	1003	--	21	--	--	--	16.0	50	315	20	715
18...	1005	.0	--	--	962	9.0	--	--	--	--	--
18...	1007	1.6	--	--	962	9.0	--	--	--	--	--
18...	1008	3.3	--	--	964	9.0	--	--	--	--	--
18...	1009	6.6	--	--	964	9.0	--	--	--	--	--
18...	1013	13	--	--	963	9.0	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)
MAR											
02...	--	124	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	420	0	22	89	180	46	3.8
02...	--	--	--	--	--	--	--	--	--	--	--
02...	1.8	--	2.1	16	--	--	--	--	--	--	--
02...	2.3	--	1.9	15	--	--	--	--	--	--	--
02...	2.6	--	1.1	9	--	--	--	--	--	--	--
MAY											
04...	--	52	--	--	--	--	--	--	--	--	--
04...	11.9	--	10.5	96	--	--	--	--	--	--	--
04...	11.9	--	10.5	96	--	--	--	--	--	--	--
04...	11.9	--	10.5	96	--	--	--	--	--	--	--
04...	11.9	--	10.5	96	--	--	--	--	--	--	--
04...	11.9	--	10.1	100	--	--	--	--	--	--	--
AUG											
18...	--	31	--	--	--	--	--	--	--	--	--
18...	20.9	--	7.2	8	--	--	--	--	--	--	--
18...	20.9	--	7.2	8	--	--	--	--	--	--	--
18...	21.0	--	7.2	8	--	--	--	--	--	--	--
18...	21.0	--	7.2	8	--	--	--	--	--	--	--
18...	20.9	--	7.2	8	--	--	--	--	--	--	--

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
MAR										
02...	--	--	--	--	--	--	--	--	--	--
02...	30	724	9	609	4.7	230	19	.4	27	971
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)

TURTLE CREEK BASIN

473206100434400 BRUSH LAKE (DEEP) NEAR MERCER, ND--Continued

DATE	(70301)	(70303)	(00631)	(00666)	(00671)	(01020)	(01046)	(01056)	(70953)	(70954)
MAR										
02...	--	--	--	--	--	--	--	--	--	--
02...	965	1.32	--	--	--	1500	80	20	--	--
02...	--	--	.09	.03	.01	--	--	--	3.76	0.000
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	.07	.02	.01	--	--	--	--	--
02...	--	--	.05	.03	.01	--	--	--	--	--
MAY										
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	.00	.02	.01	--	--	--	7.58	0.000
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
AUG										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	.01	.02	.00	--	--	--	46.7	0.000
18...	--	--	.02	.01	.00	--	--	--	--	--
18...	--	--	.01	.01	.00	--	--	--	--	--
18...	--	--	.01	.02	.00	--	--	--	--	--

473210100433500 BRUSH LAKE (SHALLOW) NEAR MERCER, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
MAR										
02...	1745	--	8.8	--	--	-15.0	50	0	10	720
02...	1750	3.3	--	1485	8.6	--	--	--	--	--
02...	1751	6.6	--	1490	8.6	--	--	--	--	--
MAY										
04...	1500	--	10	--	--	15.5	100	180	10	707
04...	1505	.0	--	960	8.8	--	--	--	--	--
04...	1506	1.6	--	960	8.8	--	--	--	--	--
04...	1507	3.3	--	960	8.8	--	--	--	--	--
04...	1508	6.6	--	960	8.8	--	--	--	--	--
04...	1509	10	--	960	8.3	--	--	--	--	--
AUG										
18...	1329	--	8.3	--	--	17.0	50	315	20	715
18...	1330	.0	--	964	9.1	--	--	--	--	--
18...	1331	1.6	--	964	9.0	--	--	--	--	--
18...	1332	3.3	--	962	9.0	--	--	--	--	--
18...	1333	6.6	--	962	9.0	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)
MAR									
02...	--	74	--	--	--	--	--	--	--
02...	.5	--	2.4	18	.09	.02	.01	1.69	0.000
02...	1.3	--	2.2	16	.11	.02	.01	--	--
MAY									
04...	--	50	--	--	--	--	--	--	--
04...	12.2	--	10.4	102	--	--	--	--	--
04...	12.2	--	10.4	102	--	--	--	--	--
04...	12.2	--	10.3	101	.00	.02	.01	6.37	0.000
04...	12.2	--	10.3	101	--	--	--	--	--
04...	12.2	--	10.3	101	--	--	--	--	--
AUG									
18...	--	27	--	--	--	--	--	--	--
18...	20.7	--	8.7	102	--	--	--	--	--
18...	20.7	--	8.7	102	--	--	--	--	--
18...	20.6	--	8.7	102	.01	.01	.00	63.7	0.000
18...	20.6	--	8.9	105	.01	.02	.00	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

HEART RIVER BASIN

465118102513200 PATTERSON LAKE (SHALLOW) NEAR DICKINSON, ND

DATE	TIME	SAMPLING DEPTH (FT) (00003)	RESERVOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	CLOUD COVER (PERCENT) (00032)	WIND DIRECTION (DEG. FROM TRUE NORTH) (00036)	WIND VELOCITY (MILES PER HOUR) (00035)	BAROMETRIC PRESSURE (MM OF HG) (00025)
MAR											
07...	1650	4.0	4.0	17.01	1250	7.9	-2.0	100	--	13	690
07...	1655	4.0	--	--	1250	7.9	--	--	--	--	--
APR											
20...	1450	--	9.0	16.73	--	--	9.0	5	135	12	761
20...	1455	.0	--	--	850	8.0	--	--	--	--	--
20...	1456	1.6	--	--	850	8.0	--	--	--	--	--
20...	1457	3.3	--	--	850	8.0	--	--	--	--	--
20...	1458	9.8	--	--	900	8.0	--	--	--	--	--
MAY											
11...	1105	1.0	--	17.21	1520	9.4	15.0	100	--	--	691
11...	1107	3.3	--	--	1520	9.4	--	--	--	--	--
AUG											
22...	1200	3.3	--	--	1790	9.7	--	--	--	--	--
22...	1202	6.0	--	--	1820	9.8	--	--	--	--	--

DATE	TEMPERATURE (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)
MAR											
07...	3.0	--	5.5	45	--	--	--	--	--	--	--
07...	4.0	--	5.6	47	200	0	49	19	160	62	4.9
APR											
20...	--	12	--	--	--	--	--	--	--	--	--
20...	6.0	--	13.6	110	--	--	--	--	--	--	--
20...	6.0	--	13.7	110	--	--	--	--	--	--	--
20...	6.0	--	13.8	111	--	--	--	--	--	--	--
20...	5.0	--	15.6	122	--	--	--	--	--	--	--
MAY											
11...	13.0	--	9.0	94	--	--	--	--	--	--	--
11...	13.0	--	9.0	94	--	--	--	--	--	--	--
AUG											
22...	18.0	--	7.8	--	--	--	--	--	--	--	--
22...	17.5	--	8.2	--	--	--	--	--	--	--	--

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
MAR										
07...	--	--	--	--	--	--	--	--	--	--
07...	8.0	293	0	240	5.9	300	9.4	.3	12	727
APR										
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
AUG										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

HEART RIVER BASIN

465118102513200 PATTERSON LAKE (SHALLOW) NEAR DICKINSON, ND--Continued

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
MAR										
07...	--	--	.42	.09	.04	--	--	--	0.000	0.000
07...	704	.99	--	--	--	1100	300	0	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	43.3	6.09
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	--	--	.22	.05	.02	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
AUG										
22...	--	--	.05	.05	.03	--	--	--	29.0	0.000
22...	--	--	--	--	--	--	--	--	--	--

465207102494500 PATTERSON LAKE (DEEP) NEAR DICKINSON, ND

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	ELEV. OF LAND SURFACE DATUM (FT. NGVD) (72000)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG, FROM TRUE NORTH) (00036)	WIND VELOC-ITY (MILES PER HOUR) (00035)
MAR											
07...	1010	1.6	18	16.28	2400.00	1060	7.7	.0	100	--	--
07...	1013	3.3	--	--	2400.00	--	--	--	--	--	--
07...	1015	--	--	--	2400.00	1090	7.6	--	--	--	--
07...	1016	6.6	--	--	2400.00	1090	7.6	--	--	--	--
07...	1022	13	--	--	2400.00	--	--	--	--	--	--
07...	1026	18	--	--	2400.00	1250	7.5	--	--	--	--
APR											
20...	1610	--	22	16.73	2400.00	--	--	9.0	5	120	10
20...	1628	.0	--	--	2400.00	570	7.4	--	--	--	--
20...	1629	1.6	--	--	2400.00	--	--	--	--	--	--
20...	1630	3.3	--	--	2400.00	--	--	--	--	--	--
20...	1631	9.8	--	--	2400.00	--	--	--	--	--	--
20...	1632	16	--	--	2400.00	555	7.3	--	--	--	--
20...	1634	22	--	--	2400.00	558	7.3	--	--	--	--
MAY											
11...	1200	1.0	--	17.01	2400.00	850	9.6	15.0	100	--	--
11...	1202	3.3	--	--	2400.00	850	9.6	--	--	--	--
AUG											
22...	1118	--	27	15.27	2400.00	--	--	19.0	100	135	27
22...	1120	--	--	--	2400.00	1780	8.7	--	--	--	--
22...	1121	1.6	--	--	2400.00	--	--	--	--	--	--
22...	1123	3.3	--	--	2400.00	1780	8.7	--	--	--	--
22...	1125	6.6	--	--	2400.00	--	--	--	--	--	--
22...	1127	13	--	--	2400.00	1740	9.8	--	--	--	--
22...	1129	19	--	--	2400.00	--	--	--	--	--	--
22...	1131	26	--	--	2400.00	--	--	--	--	--	--
22...	1133	33	--	--	2400.00	1720	9.8	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

HEART RIVER BASIN

465207102494500 PATTERSON LAKE (DEEP) NEAR DICKINSON, ND--Continued

DATE	BARO-METRIC PRES-SURE (MM OF HG) (03026)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
MAR											
07...	701	3.0	42	5.2	42	--	--	--	--	--	--
07...	--	4.0	--	5.1	42	--	--	--	--	--	--
07...	--	4.5	--	--	34	220	0	51	23	180	63
07...	--	4.5	--	4.0	34	--	--	--	--	--	--
07...	--	6.0	--	1.4	11	--	--	--	--	--	--
07...	--	6.0	--	1.0	9	--	--	--	--	--	--
APR											
20...	760	--	11	--	--	--	--	--	--	--	--
20...	--	5.0	--	11.2	88	--	--	--	--	--	--
20...	--	5.0	--	11.2	88	--	--	--	--	--	--
20...	--	5.0	--	11.3	88	--	--	--	--	--	--
20...	--	5.0	--	11.5	90	--	--	--	--	--	--
20...	--	4.9	--	11.4	94	--	--	--	--	--	--
20...	--	4.7	--	11.4	88	--	--	--	--	--	--
MAY											
11...	691	12.0	--	9.2	100	--	--	--	--	--	--
11...	--	12.0	--	9.2	100	--	--	--	--	--	--
AUG											
22...	--	--	24	--	--	--	--	--	--	--	--
22...	--	18.0	--	--	--	340	72	72	39	270	63
22...	--	18.0	--	5.7	--	--	--	--	--	--	--
22...	--	18.0	--	5.7	--	--	--	--	--	--	--
22...	--	17.5	--	5.8	--	--	--	--	--	--	--
22...	--	17.5	--	5.3	--	--	--	--	--	--	--
22...	--	17.0	--	5.0	--	--	--	--	--	--	--
22...	--	17.0	--	4.9	--	--	--	--	--	--	--
22...	--	17.0	--	4.6	--	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
MAR											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	5.3	7.6	312	0	256	13	340	9.3	.3	13	800
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAY											
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
AUG											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	6.4	7.4	327	0	268	1.0	650	11	.3	7.5	1250
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

HEART RIVER BASIN

465207102494500 PATTERSON LAKE (DEEP) NEAR DICKINSON, ND--Continued

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
MAR										
07...	--	--	.30	.10	.03	--	--	--	0.000	0.000
07...	--	--	--	--	--	--	--	--	--	--
07...	780	1.09	--	--	--	1200	120	440	--	--
07...	--	--	.43	.10	.04	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	.30	.10	.04	--	--	--	--	--
MAY										
11...	--	--	.02	02	.01	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
AUG										
22...	--	--	--	--	--	--	--	--	--	--
22...	1220	1.70	.07	.05	.05	290	140	270	1.59	0.000
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

JAMES RIVER BASIN

470425098342700 SPIRITWOOD LAKE (SHALLOW) NEAR WIMBLEDON, ND

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG. FROM TRUE NORTH) (00036)	WIND VELOC-ITY (MILES PER HOUR) (00035)
FEB										
16...	1415	--	6.6	--	--	--	10.0	35	315	12
16...	1416	3.3	--	--	2100	9.2	--	--	--	--
16...	1417	6.6	--	--	--	--	--	--	--	--
16...	1617	6.6	--	--	2310	9.2	--	--	--	--
MAY										
17...	1400	--	6.6	--	--	--	23.5	0	135	20
17...	1401	3.3	--	--	2300	8.9	--	--	--	--
17...	1403	6.6	--	--	2350	8.8	--	--	--	--
AUG										
22...	1230	--	6.6	34.60	--	--	18.0	100	90	7.5
22...	1239	.0	--	--	2250	7.8	--	--	--	--
22...	1240	3.3	--	--	2254	7.6	--	--	--	--
22...	1241	3.3	--	--	2400	9.1	--	--	--	--
22...	1242	6.6	--	--	2230	7.3	--	--	--	--

DATE	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
FEB										
16...	727	--	79	--	--	--	--	--	--	--
16...	--	.0	--	8.9	63	.05	.08	.04	0.630	0.000
16...	--	--	--	--	62	--	--	--	--	--
16...	--	.1	--	8.7	--	--	--	--	--	--
MAY										
17...	728	--	84	--	--	--	--	--	--	--
17...	--	13.0	--	10.3	103	.05	.04	.02	0.590	0.000
17...	--	13.0	--	10.1	101	--	--	--	--	--
AUG										
22...	726	--	73	--	--	--	--	--	--	--
22...	--	20.5	--	8.7	101	--	--	--	--	--
22...	--	20.5	--	8.0	--	--	--	--	--	--
22...	--	20.5	--	7.6	90	.00	.03	.01	14.7	0.000
22...	--	20.3	--	8.8	102	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

JAMES RIVER BASIN

470427098345800 SPIRITWOOD LAKE (DEEP) NEAR WIMBLEDON, ND

DATE	TIME	SAMP-LING DEPTH (FT) (00003)	RESER-VOIR DEPTH (FEET) (72025)	STREAM STAGE (FT ABOVE DATUM) (00065)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	CLOUD COVER (PER-CENT) (00032)	WIND DIREC-TION (DEG, FROM TRUE NORTH) (00036)	WIND VELOC-ITY (MILES PER HOUR) (00035)	BARO-METRIC PRES-SURE (MM OF HG) (00025)
FEB											
16...	1150	--	48	47.41	2900	8.6	-16.0	0	315	7.0	728
16...	1151	3.3	--	--	2460	8.9	--	--	--	--	--
16...	1152	6.6	--	--	2540	9.2	--	--	--	--	--
16...	1153	13	--	--	2598	9.2	--	--	--	--	--
16...	1154	19	--	--	2605	9.2	--	--	--	--	--
16...	1155	26	--	--	2600	9.2	--	--	--	--	--
16...	1156	33	--	--	2600	9.2	--	--	--	--	--
16...	1157	39	--	--	2630	9.0	--	--	--	--	--
16...	1158	46	--	--	2680	8.9	--	--	--	--	--
16...	1159	48	--	--	2740	9.2	--	--	--	--	--
MAY											
17...	1025	--	51	33.03	--	--	20.0	0	135	15	750
17...	1026	3.3	--	--	2358	8.8	--	--	--	--	--
17...	1028	6.6	--	--	2358	8.8	--	--	--	--	--
17...	1029	13	--	--	2355	8.8	--	--	--	--	--
17...	1030	19	--	--	2355	8.8	--	--	--	--	--
17...	1031	26	--	--	2362	8.8	--	--	--	--	--
17...	1032	33	--	--	2350	8.8	--	--	--	--	--
17...	1033	39	--	--	2375	8.8	--	--	--	--	--
17...	1034	46	--	--	2393	8.6	--	--	--	--	--
17...	1036	51	--	--	2392	8.5	--	--	--	--	--
AUG											
22...	0907	--	49	34.68	--	--	14.5	70	45	12	728
22...	0909	.0	--	--	2330	8.8	--	--	--	--	--
22...	0910	1.6	--	--	2239	8.8	--	--	--	--	--
22...	0911	3.3	--	--	2238	8.8	--	--	--	--	--
22...	0912	6.6	--	--	2239	8.8	--	--	--	--	--
22...	0913	13	--	--	2238	8.8	--	--	--	--	--
22...	0914	19	--	--	2237	8.8	--	--	--	--	--
22...	0915	26	--	--	2232	8.7	--	--	--	--	--
22...	0919	27	--	--	2450	9.0	--	--	--	--	--
22...	0920	33	--	--	2235	8.5	--	--	--	--	--
22...	0921	39	--	--	2317	7.5	--	--	--	--	--
22...	0923	46	--	--	2335	7.5	--	--	--	--	--
22...	0925	49	--	--	2334	7.4	--	--	--	--	--

DATE	TEMPER-ATURE (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
FEB										
16...	--	349	--	--	770	350	28	170	360	48
16...	.1	--	8.7	62	--	--	--	--	--	--
16...	.2	--	8.7	62	--	--	--	--	--	--
16...	.2	--	8.7	62	--	--	--	--	--	--
16...	.6	--	8.3	60	--	--	--	--	--	--
16...	.9	--	7.6	56	--	--	--	--	--	--
16...	1.3	--	6.8	50	--	--	--	--	--	--
16...	1.2	--	1.8	13	--	--	--	--	--	--
16...	2.8	--	.1	1	--	--	--	--	--	--
16...	3.4	--	.0	0	--	--	--	--	--	--
MAY										
17...	--	215	--	--	--	--	--	--	--	--
17...	12.4	--	8.5	84	--	--	--	--	--	--
17...	12.4	--	8.3	82	--	--	--	--	--	--
17...	12.3	--	8.4	81	--	--	--	--	--	--
17...	12.3	--	8.3	81	--	--	--	--	--	--
17...	12.3	--	9.6	94	--	--	--	--	--	--
17...	10.6	--	8.8	91	--	--	--	--	--	--
17...	8.4	--	6.3	57	--	--	--	--	--	--
17...	7.3	--	.4	4	--	--	--	--	--	--
17...	7.0	--	.1	1	--	--	--	--	--	--
AUG										
22...	--	86	--	--	--	--	--	--	--	--
22...	20.9	--	8.3	96	--	--	--	--	--	--
22...	20.9	--	8.2	95	730	370	28	160	320	47
22...	20.9	--	8.1	94	--	--	--	--	--	--
22...	20.9	--	7.9	92	--	--	--	--	--	--
22...	20.9	--	7.9	92	--	--	--	--	--	--
22...	20.9	--	7.8	91	--	--	--	--	--	--
22...	20.7	--	5.4	62	--	--	--	--	--	--
22...	20.0	--	--	0	--	--	--	--	--	--
22...	19.3	--	.0	0	--	--	--	--	--	--
22...	13.5	--	.0	0	--	--	--	--	--	--
22...	13.0	--	.0	0	--	--	--	--	--	--
22...	12.4	--	.0	0	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY LAKE STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

JAMES RIVER BASIN

470427098345800 SPIRITWOOD LAKE (DEEP) NEAR WIMBLEDON, ND--Continued

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
FEB										
16...	5.6	66	493	9	419	2.1	1000	140	.2	.7
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
MAY										
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
AUG										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	5.2	40	441	0	362	1.0	910	130	.2	2.5
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
FEB										
16...	2050	2020	--	--	--	720	100	100	--	--
16...	--	--	.04	.07	.04	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	.04	.07	.04	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	.01	.15	.01	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
MAY										
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	.05	.05	.02	--	--	--	0.590	0.000
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	.05	.09	.04	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	.03	.21	.14	--	--	--	--	--
AUG										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	1910	1810	--	--	--	630	40	320	--	--
22...	--	--	.00	.03	.01	--	--	--	15.0	0.000
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	.00	.03	.01	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	.00	.65	.71	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY STREAM STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
OCT , 1977 18...	1330	--	9.2	7.0	55	800	320	72	150	610	59
JAN , 1978 19...	1015	--	8.8	.0	27	1100	530	89	210	840	60
MAY 10...	1500	--	8.6	16.0	43	480	170	60	80	300	55
AUG 16...	1450	--	8.5	23.0	33	760	300	75	140	580	59

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
MAR , 1978 29...	1210	127	--	3.5	--	--	--	--	--	--	--
APR 04...	1230	63	7.8	4.0	--	170	67	33	22	36	30
MAY 03...	1020	3.8	--	11.5	--	--	--	--	--	--	--
JUN 06...	1300	.45	--	18.0	--	--	--	--	--	--	--
29...	1625	E2.5	--	23.5	--	--	--	--	--	--	--
AUG 03...	2030	E.05	--	17.5	--	--	--	--	--	--	--

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
APR , 1978 13...	1510	1.0	8.5	6.0	60	230	140	50	26	23	17
MAY 03...	2005	1.6	--	17.0	--	--	--	--	--	--	--
JUN 06...	1530	E1.5	--	18.0	--	--	--	--	--	--	--
29...	1440	E.24	--	25.0	--	--	--	--	--	--	--

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT , 1977 18...	9.4	91	520	30	480	.6	1400	280	.1	14	2840
JAN , 1978 19...	11	110	630	27	560	1.7	1900	360	.1	18	3770
MAY 10...	6.0	45	380	0	310	1.5	610	130	.1	14	1420
AUG 16...	9.1	83	480	40	460	2.8	1200	270	.1	20	2730

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
MAR , 1978 29...	--	--	--	--	--	--	--	--	--	--	--
APR 04...	1.2	9.5	130	0	110	3.3	140	14	.1	12	339

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
APR , 1978 13...	.7	14	110	0	90	.6	180	9.9	.1	9.8	378
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT , 1977 18...	2900	3.86	.00	.05	30	20	0	610	0	0	2
JAN , 1978 19...	3870	5.13	.30	.48	0	28	100	790	--	10	3
MAY 10...	1430	1.93	.00	.08	0	8	100	330	1	10	0
AUG 16...	2650	3.71	.01	.37	--	--	--	620	--	--	--

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
MAR , 1978 29...	--	--	--	--	--	--	--	--	--	--	--
APR 04...	332	.46	--	--	0	2	0	130	0	0	1
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	--	--	--	--	--	--	--	--	--	--	--

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
APR , 1978 13...	367	.51	.01	.05	0	5	0	110	0	0	0
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--

05056405 - BIG COULEE AT GRAHAM IS INLET NR FT TOTTEN, ND (LAT 48 02 25 LONG 099 02 50)

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
OCT , 1977 18...	20	2	270	20	.0	3	0	0	1.0	10	.00
JAN , 1978 19...	20	--	300	20	.3	4	2	0	4.0	20	.00
MAY 10...	50	--	150	10	.0	0	1	0	.0	20	.00
AUG 16...	20	--	--	0	--	--	--	--	--	--	--

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
MAR , 1978 29...	--	--	--	--	--	--	--	--	--	--	--
APR 04...	70	6	20	0	.0	2	6	0	1.0	10	.00

05123750 - CUT BANK CREEK AT UPHAM, ND (LAT 48 34 29 LONG 100 44 39)

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
APR , 1978 13...	40	3	30	0	.0	1	0	0	.0	0	.00
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY STREAM STATIONS

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT AND BED MATERIAL

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
RED RIVER OF THE NORTH BASIN							
05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)							
APR , 1978 19...	1330	444	5.0	99	--	--	--
WHITE EARTH RIVER BASIN							
06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)							
JUN , 1978 21...	--	--	--	--	4	4	8
LITTLE MISSOURI RIVER BASIN							
06336000 - LITTLE MISSOURI RIVER AT MEDORA, ND (LAT 46 55 10 LONG 103 31 40)							
JUN , 1978 22...	--	--	--	--	1	1	16
TURTLE CREEK BASIN							
06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)							
JUN , 1978 21...	--	--	--	--	76	85	96
HEART RIVER BASIN							
06347000 - ANTELOPE CR NR CARSON N DAK (LAT 46 31 50 LONG 101 38 25)							
JUN , 1978 19...	--	--	--	--	3	4	12
06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)							
JUN , 1978 19...	--	--	--	--	1	1	11
CANNONBALL RIVER BASIN							
06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)							
JUN , 1978 19...	--	--	--	--	5	9	41
JAMES RIVER BASIN							
06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)							
JUN , 1978 22...	--	--	--	--	1	1	5
06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)							
JUN , 1978 22...	--	--	--	--	5	7	18

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY STREAM STATIONS

INSTANTANEOUS SUSPENDED SEDIMENT AND PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT AND BED MATERIAL

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
RED RIVER OF THE NORTH BASIN							
05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)							
APR , 1978 19...	--	--	--	--	--	--	--
WHITE EARTH RIVER BASIN							
06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)							
JUN , 1978 21...	18	33	41	57	78	97	100
LITTLE MISSOURI RIVER BASIN							
06336000 - LITTLE MISSOURI RIVER AT MEDORA, ND (LAT 46 55 10 LONG 103 31 40)							
JUN , 1978 22...	44	61	72	81	90	100	--
TURTLE CREEK BASIN							
06341400 - TURTLE CREEK NR TURTLE LAKE, ND (LAT 47 27 30 LONG 100 55 15)							
JUN , 1978 21...	100	--	--	--	--	--	--
HEART RIVER BASIN							
06347000 - ANTELOPE CR NR CARSON N DAK (LAT 46 31 50 LONG 101 38 25)							
JUN , 1978 19...	26	29	33	42	64	100	--
06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)							
JUN , 1978 19...	57	66	75	83	95	100	--
CANNONBALL RIVER BASIN							
06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)							
JUN , 1978 19...	71	90	95	97	98	100	--
JAMES RIVER BASIN							
06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)							
JUN , 1978 22...	18	33	43	56	78	95	100
06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 50)							
JUN , 1978 22...	31	38	52	62	70	100	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
PART 5. HUDSON BAY BASIN										
RED RIVER OF THE NORTH BASIN										
05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)										
APR , 1978 04...	1030	4350	300	8.2	3.0	140	38	35	13	5.7
05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)										
MAR , 1978 30...	1400	368	260	7.5	6.0	91	31	22	8.8	4.8
05051700 - WILD RICE RIVER NR CAYUGA, ND (LAT 46 07 30 LONG 097 21 40)										
MAR , 1978 30...	1605	245	245	7.2	9.5	88	22	22	8.0	6.6
05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)										
APR , 1978 03...	1255	17100	240	7.8	.5	95	21	23	9.1	5.5
05056100 - MAUVAIS COULEE NR CANDO, ND (LAT 48 26 53 LONG 099 06 08)										
OCT , 1977 19...	1305	.04	1300	8.3	7.0	500	260	77	75	100
APR , 1978 11...	1620	231	400	7.6	2.0	150	58	37	14	16
05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)										
APR , 1978 10...	1050	616	370	7.8	4.0	110	11	28	9.7	24
05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)										
OCT , 1977 05...	1145	2.3	750	8.1	9.0	300	40	58	38	62
MAR , 1978 27...	1230	152	240	7.9	.5	82	9	21	7.2	6.0
05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)										
OCT , 1977 05...	0925	8.2	700	8.2	11.0	230	0	45	29	76
MAR , 1978 30...	1400	50	1010	7.6	5.5	340	0	65	43	100
05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)										
MAR , 1978 28...	1925	1560	370	8.5	1.0	140	14	24	19	23
APR 03...	1535	1150	440	7.9	.5	150	23	30	13	26
05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)										
OCT , 1977 04...	1200	.01	2000	7.8	13.0	890	490	230	77	170
MAR , 1978 27...	1610	111	220	7.9	.5	74	16	19	6.4	7.8
05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 18 LONG 097 34 25)										
MAR , 1978 27...	1530	996	300	8.2	4.5	130	37	31	13	14

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
PART 5. HUDSON BAY BASIN									
RED RIVER OF THE NORTH BASIN									
05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)									
APR , 1978 04...	8	.2	4.7	126	0	103	1.3	53	4.3
05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)									
MAR , 1978 30...	9	.2	7.9	73	0	60	3.7	37	7.8
05051700 - WILD RICE RIVER NR CAYUGA, ND (LAT 46 07 30 LONG 097 21 40)									
MAR , 1978 30...	13	.3	7.6	80	0	66	8.1	30	5.7
05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)									
APR , 1978 03...	11	.2	5.0	90	0	74	2.3	27	7.6
05056100 - MAUVAIS COULEE NR CANDO, ND (LAT 48 26 53 LONG 099 06 08)									
OCT , 1977 19...	30	1.9	9.5	289	0	237	2.3	390	46
APR , 1978 11...	18	.6	8.0	112	0	92	4.5	87	4.1
05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)									
APR , 1978 10...	31	1.0	6.4	120	0	98	3.0	53	6.1
05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)									
OCT , 1977 05...	30	1.6	6.6	310	4	261	4.0	140	20
MAR , 1978 27...	13	.3	6.2	89	0	73	1.8	25	3.8
05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)									
OCT , 1977 05...	40	2.2	9.0	304	0	249	3.1	120	16
MAR , 1978 30...	38	2.4	14	414	0	340	17	180	26
05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)									
MAR , 1978 28...	26	.9	5.6	151	0	124	.8	52	11
APR 03...	27	.9	6.5	153	0	125	3.1	73	13
05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)									
OCT , 1977 04...	29	2.5	11	467	9	398	12	810	39
MAR , 1978 27...	17	.4	5.3	71	0	58	1.4	30	3.4
05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 10 LONG 097 34 05)									
MAR , 1978 27...	18	.5	6.7	115	0	94	1.2	56	7.1

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)									
APR , 1978 04...	.1	11	193	189	.26	2270	270	80	10
05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)									
MAR , 1978 30...	.1	10	170	135	.23	169	180	40	20
05051700 - WILD RICE RIVER NR CAYUGA, ND (LAT 46 07 30 LONG 097 21 40)									
MAR , 1978 30...	.1	13	158	133	.21	105	140	100	40
05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)									
APR , 1978 03...	.1	8.0	134	130	.18	6190	230	140	60
05056100 - MAUVAIS COULEE NR CANDO, ND (LAT 48 26 53 LONG 099 06 08)									
OCT , 1977 19...	.2	12	929	852	1.26	.10	140	100	10
APR , 1978 11...	.1	15	261	237	.35	163	150	140	10
05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)									
APR , 1978 10...	.1	23	236	210	.32	393	140	60	0
05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)									
OCT , 1977 05...	.1	5.3	528	487	.72	3.28	100	80	0
MAR , 1978 27...	.1	11	145	124	.20	59.5	90	160	220
05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)									
OCT , 1977 05...	.1	22	456	467	.62	10.1	100	80	200
MAR , 1978 30...	.2	27	699	661	.95	109	140	0	1300
05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)									
MAR , 1978 28...	.1	8.9	238	219	.32	1000	810	430	160
APR 03...	.1	12	270	257	.37	838	180	40	120
05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)									
OCT , 1977 04...	.2	24	1660	1600	2.26	.04	520	100	120
MAR , 1978 27...	.1	11	161	118	.22	48.3	50	160	20
05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 18 LONG 097 34 25)									
MAR , 1978 27...	.1	12	224	198	.30	662	140	200	200

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
PART 5. HUDSON BAY BASIN										
RED RIVER OF THE NORTH BASIN										
05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)										
OCT , 1977										
21...	1415	.66	1900	8.1	10.0	660	420	150	69	200
MAR , 1978										
29...	1045	344	300	8.0	.8	130	42	33	12	7.6
05066500 - GOOSE RIVER AT HILLSBORO, ND (LAT 47 24 20 LONG 097 03 40)										
OCT , 1977										
05...	1615	2.3	1300	8.2	12.0	470	220	98	55	120
MAR , 1978										
29...	1415	1020	340	7.8	.5	150	60	34	16	9.2
05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)										
APR , 1978										
17...	1510	37100	300	7.8	5.0	150	41	37	14	2.9
17...	1511	37100	300	7.8	5.0	140	41	36	12	2.6
05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)										
OCT , 1977										
17...	1715	.02	3400	8.2	8.5	1000	800	220	110	410
APR , 1978										
05...	1800	64	350	7.9	.5	130	45	30	13	22
05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)										
OCT , 1977										
17...	1520	12	635	8.7	9.5	310	67	77	29	22
APR , 1978										
05...	1420	409	370	7.2	2.5	140	32	34	13	21
05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)										
OCT , 1977										
17...	1240	9.2	645	8.2	8.0	290	56	72	27	28
APR , 1978										
11...	1040	667	400	7.8	4.0	140	23	36	12	23
05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)										
OCT , 1977										
13...	1600	.77	960	8.4	11.0	320	140	77	31	38
APR , 1978										
11...	1640	502	295	7.9	2.5	100	17	26	8.5	17
05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)										
OCT , 1977										
14...	1050	.28	1080	8.4	7.5	300	85	62	35	170
APR , 1978										
19...	1330	444	450	8.0	5.0	150	39	39	13	31
05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)										
OCT , 1977										
12...	1615	1200	970	8.6	8.5	320	92	70	35	76
APR , 1978										
17...	1345	56100	315	7.5	7.0	130	27	32	12	7.3
05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)										
OCT , 1977										
11...	1335	.01	2120	8.6	7.0	1100	1000	180	160	90
APR , 1978										
04...	1400	22	345	7.3	1.0	170	72	38	18	4.4

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 21...	39	3.4	19	293	0	240	3.7	670	120
MAR , 1978 29...	11	.3	6.2	109	0	89	1.7	47	3.5

05066500 - GOOSE RIVER AT HILLSBORO, ND (LAT 47 24 20 LONG 097 03 40)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 05...	35	2.4	15	304	0	249	3.1	350	89
MAR , 1978 29...	11	.3	5.9	111	0	91	2.8	70	5.4

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
APR , 1978 17...	4	.1	3.0	133	0	109	3.4	37	2.5
17...	6	.1	3.6	120	0	98	3.0	37	3.2

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 17...	47	5.6	13	238	5	204	2.5	1500	150
APR , 1978 05...	26	.8	3.8	102	0	84	2.1	87	4.4

05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 17...	13	.5	4.6	276	11	245	1.0	95	7.0
APR , 1978 05...	24	.8	4.7	130	0	107	13	69	7.7

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 17...	17	.7	6.0	270	8	235	2.9	88	18
APR , 1978 11...	26	.8	4.6	142	0	116	3.6	79	1.3

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 13...	20	.9	6.1	209	4	178	1.4	190	12
APR , 1978 11...	26	.7	3.2	101	0	83	2.0	47	2.3

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 14...	54	4.3	11	255	3	214	1.7	210	100
APR , 1978 19...	30	1.1	5.2	137	0	112	2.2	77	17

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 12...	34	1.9	6.5	265	6	227	1.1	120	110
APR , 1978 17...	11	.3	4.0	125	0	103	6.3	35	4.8

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT , 1977 11...	15	1.2	16	111	0	91	.3	1000	150
APR , 1978 04...	5	.1	4.8	118	0	97	9.5	63	4.7

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)
PART 5. HUDSON BAY BASIN									
RED RIVER OF THE NORTH BASIN									
05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)									
OCT , 1977 21...	.1	22	1450	1400	1.97	2.58	620	120	80
MAR , 1978 29...	.1	11	253	175	.34	235	90	750	160
05066500 - GOOSE RIVER AT HILLSBORO, ND (LAT 47 24 20 LONG 097 03 40)									
OCT , 1977 05...	.2	12	921	889	1.25	5.72	380	80	80
MAR , 1978 29...	.1	12	238	208	.32	1170	140	100	240
05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)									
APR , 1978 17...	.1	7.7	162	170	.22	16200	390	160	0
17...	.3	7.9	173	168	.24	17300	40	50	0
05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)									
OCT , 1977 17...	.1	16	2610	2540	3.55	.18	190	120	40
APR , 1978 05...	.1	9.8	252	221	.34	43.5	140	120	60
05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)									
OCT , 1977 17...	.1	11	407	393	.55	13.2	0	100	140
APR , 1978 05...	.1	9.7	251	224	.34	277	50	320	200
05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)									
OCT , 1977 17...	.1	12	397	392	.54	9.86	100	120	60
APR , 1978 11...	.1	14	273	241	.37	492	440	40	180
05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)									
OCT , 1977 13...	.2	9.4	474	471	.64	.99	100	220	240
APR , 1978 11...	.1	15	221	170	.30	300	770	80	20
05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)									
OCT , 1977 14...	.2	7.5	801	805	1.09	.61	430	60	50
APR , 1978 19...	.1	17	295	267	.40	354	330	160	60
05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)									
OCT , 1977 12...	.1	10	576	564	.78	1870	0	60	0
APR , 1978 17...	.1	11	200	169	.27	30300	500	320	40
05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)									
OCT , 1977 11...	.4	2.8	1780	1650	2.42	.05	140	80	0
APR , 1978 04...	.2	11	215	202	.29	12.8	50	40	0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)										
APR , 1978										
07...	1330	90	315	7.7	.5	130	55	29	14	11
05098800 - CYPRESS CREEK NR SAHLES, ND (LAT 48 56 35 LONG 098 57 05)										
APR , 1978										
06...	1200	194	425	7.8	1.0	160	75	37	16	27
MAY										
03...	1335	.41	850	8.2	17.0	360	130	84	36	53
05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)										
OCT , 1977										
12...	1015	35	875	8.7	5.5	370	130	90	35	52
APR , 1978										
13...	1445	1490	410	7.9	.5	180	56	39	20	28
13...	1446	1490	410	7.9	.5	160	45	41	14	27
05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)										
OCT , 1977										
13...	1850	.19	825	8.1	10.0	340	99	96	24	43
05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)										
OCT , 1977										
11...	1730	2.9	540	8.7	8.0	240	25	63	20	24
APR , 1978										
07...	2000	372	475	7.5	.5	140	16	39	10	17
05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)										
OCT , 1977										
04...	1145	.01	2000	8.6	8.0	540	240	74	86	270
MAR , 1978										
28...	1050	643	395	8.5	.0	110	40	25	12	34
05116500 - DES LACS RIVER AT FOXHOLM, ND (LAT 48 22 14 LONG 101 34 11)										
APR , 1978										
05...	1045	46	835	8.1	5.0	300	130	68	32	76
05...	1046	46	835	8.1	5.0	280	110	63	30	74
SEP										
22...	1115	--	1780	8.5	11.0	490	48	85	67	260
05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)										
APR , 1978										
06...	1115	158	710	8.1	3.5	240	59	49	29	63
SEP										
22...	0925	--	870	8.1	11.0	280	0	45	41	99
05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)										
APR , 1978										
13...	0945	230	740	8.2	2.5	180	29	41	20	79
13...	0946	230	740	8.2	2.5	210	54	40	27	76
05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)										
APR , 1978										
12...	1030	23	540	8.2	3.0	190	83	43	20	27

DATE	SODIUM PERCENT (00932)	SODIUM AD-SURP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
PART 5. HUDSON BAY BASIN									
RED RIVER OF THE NORTH BASIN									
05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)									
APR , 1978 07...	15	.4	6.3	91	0	75	2.9	70	5.9
05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)									
APR , 1978 06...	26	.9	5.8	101	0	83	2.6	120	5.6
MAY 03...	24	1.2	7.4	276	0	226	2.8	220	16
05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)									
OCT , 1977 12...	23	1.2	7.5	271	13	244	.9	200	17
APR , 1978 13...	25	.9	4.4	151	0	124	3.0	94	5.9
13...	26	.9	5.6	140	0	110	2.8	100	6.6
05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)									
OCT , 1977 13...	21	1.0	7.3	292	0	239	3.7	170	20
05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)									
OCT , 1977 11...	17	.7	5.2	249	6	214	.8	61	7.1
APR , 1978 07...	20	.6	4.3	150	0	123	7.6	53	6.9
05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)									
OCT , 1977 04...	51	5.1	13	366	0	300	1.5	740	33
MAR , 1978 28...	38	1.4	8.2	88	0	72	.4	110	5.3
05116500 - DES LACS RIVER AT FOXHOLM, ND (LAT 48 22 14 LONG 101 34 11)									
APR , 1978 05...	35	1.9	8.6	210	0	170	2.7	250	9.9
05...	36	1.9	7.5	213	0	175	2.7	260	11
SEP 22...	53	5.1	9.1	536	0	440	2.7	560	42
05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)									
APR , 1978 06...	35	1.8	9.0	223	0	183	2.8	170	15
SEP 22...	42	2.6	11	286	33	290	4.5	190	25
05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)									
APR , 1978 13...	46	2.5	12	190	0	160	1.9	190	18
13...	43	2.3	9.6	191	0	157	1.9	200	14
05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)									
APR , 1978 12...	22	.9	14	130	0	107	1.3	99	41

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)									
APR , 1978 07...	.1	10	197	192	.27	47.9	140	240	40
05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)									
APR , 1978 06...	.1	12	297	274	.40	156	320	20	0
MAY 03...	.2	22	583	575	.79	.65	0	160	60
05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)									
OCT , 1977 12...	.2	14	576	563	.78	54.4	100	320	80
APR , 1978 13...	.2	16	277	283	.38	1110	550	240	280
13...	.2	16	278	290	.38	1120	100	70	230
05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)									
OCT , 1977 13...	.4	17	457	523	.62	.23	100	80	1400
05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)									
OCT , 1977 11...	.1	2.1	354	312	.48	2.77	0	80	600
APR , 1978 07...	.2	16	223	221	.30	224	230	20	650
05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)									
OCT , 1977 04...	.1	6.9	1470	1420	2.00	.04	330	140	60
MAR , 1978 28...	.1	6.3	287	245	.39	498	50	360	80
05116500 - DES LACS RIVER AT FOXHOLM, ND (LAT 48 22 14 LONG 101 34 11)									
APR , 1978 05...	.1	13	565	563	.77	70.2	70	30	200
05...	.1	12	564	563	.77	70.0	270	120	240
SEP 22...	.3	9.8	1330	1300	1.81	--	30	20	80
05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)									
APR , 1978 06...	.1	9.9	473	456	.64	202	270	60	480
SEP 22...	.2	8.6	597	594	.81	--	60	20	240
05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)									
APR , 1978 13...	.6	17	506	464	.69	314	160	90	10
13...	.1	23	506	484	.69	314	320	120	0
05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 31 44)									
APR , 1978 12...	.1	14	370	323	.50	23.0	50	410	10

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
PART 5. HUDSON BAY BASIN										
RED RIVER OF THE NORTH BASIN										
05123700 - CUT BANK CREEK AT N LAKE OUTLET NR GRANVILLE, ND (LAT 48 23 10 LONG 100 46 00)										
APR , 1978 11...	1820	5.4	795	8.9	6.0	280	160	50	38	58
05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)										
APR , 1978 12...	1345	44	510	8.0	2.5	170	55	34	21	45
PART 6. MISSOURI RIVER BASIN										
YELLOWSTONE RIVER BASIN										
06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, ND (LAT 47 51 10 LONG 103 47 40)										
MAR , 1978 27...	1440	714	235	8.2	2.0	60	0	15	5.5	25
WHITE EARTH RIVER BASIN										
06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)										
MAR , 1978 29...	1000	534	570	8.4	1.5	150	0	20	19	61
SHELL CREEK BASIN										
06332520 - SHELL CREEK NR PARSHALL, ND (LAT 48 03 11 LONG 102 08 10)										
MAR , 1978 29...	1300	184	900	8.6	5.5	140	0	23	20	160
LITTLE MISSOURI RIVER BASIN										
06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)										
APR , 1978 10...	1505	97	1120	8.2	8.0	250	45	53	29	160
AUG 03...	1100	9.6	2800	8.2	17.0	280	0	60	32	380
06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)										
APR , 1978 10...	1755	1090	745	7.3	7.5	170	37	43	15	97
AUG 03...	1335	175	1460	8.0	20.5	330	110	82	30	200
KNIFE RIVER BASIN										
06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)										
MAR , 1978 30...	1405	3490	330	7.7	8.0	76	0	18	7.5	36
06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)										
MAR , 1978 31...	1430	40	415	7.7	7.0	91	3	20	10	48
JUL 21...	1330	.06	1312	9.6	23.0	230	0	21	43	830

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
PART 5. HUDSON BAY BASIN									
RED RIVER OF THE NORTH BASIN									
05123700 - CUT BANK CREEK AT N LAKE OUTLET NR GRANVILLE, ND (LAT 48 23 10 LONG 100 46 00)									
APR , 1978 11...	29	1.5	16	151	0	124	.3	260	18
05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)									
APR , 1978 12...	35	1.5	8.1	142	0	116	2.3	140	3.3
PART 6. MISSOURI RIVER BASIN									
YELLOWSTONE RIVER BASIN									
06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, ND (LAT 47 51 10 LONG 103 47 40)									
MAR , 1978 27...	45	1.4	5.3	96	0	79	1.0	49	5.5
WHITE EARTH RIVER BASIN									
06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)									
MAR , 1978 29...	46	2.2	8.2	180	0	148	1.1	130	14
SHELL CREEK BASIN									
06332520 - SHELL CREEK NR PARSHALL, ND (LAT 48 03 11 LONG 102 08 10)									
MAR , 1978 29...	70	5.9	8.3	268	0	220	1.1	250	5.9
LITTLE MISSOURI RIVER BASIN									
06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)									
APR , 1978 10...	57	4.4	4.7	252	0	207	2.5	390	3.6
AUG 03...	69	7.8	5.5	432	0	354	4.4	570	10
06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)									
APR , 1978 10...	55	3.2	4.8	161	0	132	13	230	3.4
AUG 03...	56	4.8	7.1	271	0	222	4.3	540	8.6
KNIFE RIVER BASIN									
06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)									
MAR , 1978 30...	49	1.6	5.6	98	0	80	3.1	72	4.7
06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)									
MAR , 1978 31...	52	2.2	5.4	107	0	88	3.4	110	3.0
JUL 21...	68	6.6	3.7	198	55	254	.1	450	6.4

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05123700 - CUT BANK CREEK AT N LAKE OUTLET NR GRANVILLE, ND (LAT 48 23 10 LONG 100 46 00)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
APR , 1978 11...	.1	12	597	527	.81	8.70	100	180	70

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
APR , 1978 12...	.1	18	339	340	.46	40.3	390	0	0

PART 6. MISSOURI RIVER BASIN

YELLOWSTONE RIVER BASIN

06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, ND (LAT 47 51 10 LONG 103 47 40)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR , 1978 27...	.1	8.8	171	162	.23	330	180	120	80

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR , 1978 29...	.1	15	411	364	.56	482	180	100	120

SHELL CREEK BASIN

06332520 - SHELL CREEK NR PARSHALL, ND (LAT 48 03 11 LONG 102 08 10)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR , 1978 29...	.1	12	608	612	.83	302	90	180	60

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
APR , 1978 10...	.1	9.3	806	774	1.10	212	390	60	60
AUG 03...	.4	8.5	1180	1200	1.60	30.6	230	360	20

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
APR , 1978 10...	.2	7.1	495	480	.67	1460	550	60	20
AUG 03...	.4	7.6	1040	1010	1.41	491	260	160	10

KNIFE RIVER BASIN

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR , 1978 30...	.2	3.9	259	197	.35	2440	50	570	80

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR , 1978 31...	.1	5.4	256	255	.35	27.6	270	160	70
JUL 21...	.2	1.1	936	908	1.27	.15	70	100	0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

PAINTED WOODS CREEK BASIN

06341800 - PAINTED WOODS CREEK NR WILTON, ND (LAT 47 16 30 LONG 100 47 30)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR , 1978 30...	1200	138	425	7.6	8.0	130	30	26	16	45
JUL 25...	1410	.17	1810	9.9	27.0	260	0	14	55	340

SQUARE BUTTE CREEK BASIN

06342260 - SQUARE BUTTE CREEK BELOW CENTER, ND (LAT 47 03 25 LONG 101 11 35)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR , 1978 30...	1530	656	555	7.6	11.0	130	25	28	15	65
JUL 25...	1000	1.7	1150	7.9	22.0	300	0	70	30	160

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 46)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR , 1978 30...	1000	121	340	7.8	1.0	120	9	25	14	21
JUL 25...	1530	.01	1300	8.1	22.0	380	0	56	58	160

HEART RIVER BASIN

06345500 - HEART RIVER NR RICHARDTON, ND (LAT 46 44 46 LONG 102 18 27)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
APR , 1978 05...	1145	690	920	7.9	7.0	250	110	51	30	84

06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR , 1978 28...	1400	10100	420	--	2.0	120	6	24	15	42
AUG 01...	1450	106	1250	8.6	24.0	330	99	64	41	140

06348500 - SWEETBRIAR CREEK NR JUDSON, ND (LAT 46 51 06 LONG 101 15 10)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAR , 1978 28...	1715	1030	145	--	1.0	38	0	10	3.2	13
JUL 27...	0945	.38	1250	8.3	21.0	220	0	43	27	210

CANNONBALL RIVER BASIN

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
APR , 1978 05...	1140	1020	800	7.9	6.5	230	98	48	27	94
AUG 01...	1025	22	1840	7.7	19.5	540	220	98	72	220

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
APR , 1978 07...	1625	17	970	8.0	7.0	270	120	49	36	110
AUG 03...	1725	.01	4450	7.5	21.5	1300	1080	170	210	670

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
PART 6. MISSOURI RIVER BASIN									
PAINTED WOODS CREEK BASIN									
06341800 - PAINTED WOODS CREEK NR WILTON, ND (LAT 47 16 30 LONG 100 47 30)									
MAR , 1978 30...	41	1.7	5.9	123	0	101	4.9	120	4.3
JUL 25...	73	9.2	11	240	200	530	.1	530	12
SQUARE BUTTE CREEK BASIN									
06342260 - SQUARE BUTTE CREEK BELOW CENTER, ND (LAT 47 03 25 LONG 101 11 35)									
MAR , 1978 30...	50	2.5	7.0	130	0	107	5.2	150	5.1
JUL 25...	53	4.0	4.3	456	0	374	9.2	260	7.7
BURNT CREEK BASIN									
06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)									
MAR , 1978 30...	27	.8	5.1	135	0	111	3.4	49	3.7
JUL 25...	47	3.6	5.6	500	0	410	6.4	320	6.2
HEART RIVER BASIN									
06345500 - HEART RIVER NR RICHARDTON, ND (LAT 46 44 46 LONG 102 18 27)									
APR , 1978 05...	41	2.3	6.0	172	0	141	3.5	290	6.0
06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)									
MAR , 1978 28...	41	1.7	6.7	141	0	116	--	95	3.4
AUG 01...	48	3.4	4.1	280	0	230	1.1	400	6.4
06348500 - SWEETBRIAR CREEK NR JUDSON, ND (LAT 46 51 06 LONG 101 15 10)									
MAR , 1978 28...	39	.9	4.4	56	0	46	--	22	2.9
JUL 27...	67	6.2	5.1	507	0	416	4.1	270	5.4
CANNONBALL RIVER BASIN									
06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)									
APR , 1978 05...	46	2.7	6.6	162	0	133	3.3	280	3.2
AUG 01...	47	4.1	7.4	391	0	321	12	680	9.4
06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)									
APR , 1978 07...	46	2.9	5.8	180	0	148	2.9	360	3.0
AUG 03...	53	8.1	12	328	0	269	17	2400	19

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)
PART 6. MISSOURI RIVER BASIN									
PAINTED WOODS CREEK BASIN									
06341800 - PAINTED WOODS CREEK NR WILTON, ND (LAT 47 16 30 LONG 100 47 30)									
MAR , 1978 30...	.1	5.5	296	284	.40	110	180	320	60
JUL 25...	.1	1.8	1290	1280	1.75	.59	230	200	20
SQUARE BUTTE CREEK BASIN									
06342260 - SQUARE BUTTE CREEK BELOW CENTER, ND (LAT 47 03 25 LONG 101 11 35)									
MAR , 1978 30...	.2	3.1	364	338	.50	645	360	140	40
JUL 25...	.3	20	810	778	1.10	3.72	200	410	90
BURNT CREEK BASIN									
06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)									
MAR , 1978 30...	.1	6.9	236	193	.32	77.1	90	1300	160
JUL 25...	.2	2.0	887	855	1.21	.02	290	0	40
HEART RIVER BASIN									
06345500 - HEART RIVER NR RICHARDTON, ND (LAT 46 44 46 LONG 102 18 27)									
APR , 1978 05...	.1	9.1	591	561	.80	1100	230	40	20
06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 58)									
MAR , 1978 28...	.1	11	315	267	.43	8590	90	530	160
AUG 01...	.2	5.9	866	800	1.18	248	160	630	10
06348500 - SWEETBRIAR CREEK NR JUDSON, ND (LAT 46 51 06 LONG 101 15 10)									
MAR , 1978 28...	.1	4.0	121	88	.16	337	140	300	60
JUL 27...	.6	8.6	865	820	1.18	.89	260	340	30
CANNONBALL RIVER BASIN									
06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)									
APR , 1978 05...	.1	6.7	590	546	.80	1630	550	60	120
AUG 01...	.4	8.0	1350	1290	1.84	81.6	290	100	20
06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)									
APR , 1978 07...	.1	10	693	663	.94	33.5	610	140	60
AUG 03...	.4	1.7	3730	3650	5.07	.10	880	400	550

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR , 1978										
05...	1840	409	805	8.1	7.0	250	130	46	33	82
AUG										
01...	1710	5.3	2350	7.9	23.0	620	240	100	90	380

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR , 1978										
06...	1850	482	400	7.2	5.5	240	110	44	32	86
AUG										
07...	1900	2.4	2200	8.4	24.0	330	0	61	43	390

JAMES RIVER BASIN

06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
MAR , 1978										
27...	1745	171	205	7.6	6.0	60	0	14	6.1	16
JUL										
31...	1430	<.01	1005	7.6	22.5	270	0	62	28	150

06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR , 1978										
01...	0830	590	320	8.0	1.0	86	2	19	9.4	20
AUG										
01...	1020	.07	1590	8.8	21.0	150	0	20	24	310

06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR , 1978										
01...	1230	366	320	7.8	6.0	120	5	27	13	18
JUL										
05...	1830	.26	840	8.4	29.0	270	10	47	37	88

06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
MAR , 1978										
28...	1410	68	410	7.7	2.5	150	29	37	14	19

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
PART 6. MISSOURI RIVER BASIN									
CANNONBALL RIVER BASIN									
06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)									
APR , 1978 05...	41	2.3	7.0	146	0	120	1.9	290	2.3
AUG 01...	54	5.9	10	463	0	380	9.3	910	13
GRAND RIVER BASIN									
06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)									
APR , 1978 06...	43	2.4	7.1	165	0	135	17	290	3.0
AUG 07...	71	9.4	9.0	450	0	369	2.9	790	8.0
JAMES RIVER BASIN									
06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)									
MAR , 1978 27...	33	.9	7.2	92	0	75	3.7	19	3.9
JUL 31...	54	4.0	6.5	530	0	435	21	140	13
06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)									
APR , 1978 01...	31	.9	7.2	102	0	84	1.6	39	5.6
AUG 01...	80	11	12	464	14	404	1.2	270	110
06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)									
APR , 1978 01...	23	.7	8.8	141	0	116	3.6	43	4.6
JUL 05...	40	2.3	9.2	316	0	259	2.0	200	14
06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)									
MAR , 1978 28...	21	.7	7.8	147	0	121	4.7	70	8.7

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SURFACE-WATER QUALITY SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
PART 6. MISSOURI RIVER BASIN									
CANNONBALL RIVER BASIN									
06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)									
APR , 1978									
05...	.1	8.2	569	541	.77	628	610	60	90
AUG									
01...	.4	5.7	1720	1700	2.34	24.8	130	530	140
GRAND RIVER BASIN									
06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)									
APR , 1978									
06...	.1	7.6	613	552	.83	798	330	510	80
AUG									
07...	1.2	4.4	1510	1530	2.05	9.78	590	490	20
JAMES RIVER BASIN									
06467600 - JAMES RIVER NR MANFRED, ND (LAT 47 38 40 LONG 099 49 40)									
MAR , 1978									
27...	.1	8.0	131	121	.18	60.5	910	380	80
JUL									
31...	.2	25	748	687	1.02	--	290	320	120
06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)									
APR , 1978									
01...	.1	8.1	201	159	.27	320	90	160	160
AUG									
01...	.2	1.4	1020	991	1.39	.19	200	120	40
06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)									
APR , 1978									
01...	.1	12	236	196	.32	233	90	100	40
JUL									
05...	.1	13	595	564	.81	.42	160	80	90
06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)									
MAR , 1978									
28...	.1	10	254	241	.35	46.6	1000	400	500

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
05051500 - RED RIVER OF THE NORTH AT WAHPETON, ND (LAT 46 15 55 LONG 096 35 40)									
OCT , 1977					APR , 1978				
20...	1320	221	520	9.5	04...	1030	4350	300	3.0
NOV					26...	1100	2160	500	10.0
16...	1000	359	490	.5	MAY				
DEC					24...	1150	1490	530	21.0
22...	1400	260	620	.0	JUN				
JAN , 1978					22...	1200	950	700	22.0
17...	1745	428	520	.0	JUL				
FEB					17...	1710	1330	780	28.0
17...	1315	280	560	.5	AUG				
MAR					16...	1530	295	640	23.5
20...	1625	499	420	1.0	SEP				
28...	1250	4840	240	1.0	20...	1530	196	600	15.5
29...	1430	4930	200	1.5					
31...	1710	6060	280	5.5					
05051600 - WILD RICE RIVER NR RUTLAND, ND (LAT 46 01 20 LONG 097 30 40)									
MAR , 1978					JUN , 1978				
27...	1450	30	100	1.0	21...	1620	2.8	1000	23.5
30...	1400	368	260	6.0	JUL				
APR					07...	1130	137	640	24.0
04...	1845	155	390	8.0	18...	1300	22	910	27.0
12...	1045	88	640	5.0	AUG				
25...	1500	38	725	10.5	17...	1715	.01	950	22.5
MAY									
24...	1455	13	950	25.0					
05051700 - WILD RICE RIVER NR CAYUGA, ND (LAT 46 07 30 LONG 097 21 40)									
MAR , 1978					JUN , 1978				
27...	1900	338	180	4.0	21...	1840	6.8	900	22.0
30...	1605	245	245	9.5	JUL				
APR					07...	1430	166	760	25.0
04...	1650	417	290	9.0	18...	1055	112	910	26.0
13...	1455	350	660	6.0	AUG				
25...	1730	220	675	12.0	17...	1545	4.2	925	24.5
MAY					SEP				
24...	1635	39	875	23.5	21...	1200	3.4	460	13.0
05054000 - RED RIVER OF THE NORTH AT FARGO, ND (LAT 46 51 40 LONG 096 47 00)									
OCT , 1977					APR , 1978				
20...	0945	273	670	8.5	06...	1530	13200	280	5.0
NOV					10...	1600	9160	320	7.0
29...	1520	473	560	.0	14...	1510	5860	390	6.5
DEC					20...	1630	2440	490	7.5
21...	1530	392	580	.0	MAY				
JAN , 1978					18...	1530	1730	600	20.0
19...	1235	435	560	.0	JUN				
FEB					20...	1045	1030	700	21.0
22...	1345	288	575	.0	JUL				
MAR					13...	1350	3230	470	22.5
15...	1215	445	550	.5	AUG				
28...	1725	3990	300	.8	16...	1100	328	750	25.0
31...	0930	9560	200	.5	SEP				
APR					20...	1220	83	980	16.0
03...	1255	17100	240	.5					
05056100 - MAUVAIS COULEE NR CANDO, ND (LAT 48 26 53 LONG 099 06 08)									
OCT , 1977					APR , 1978				
19...	1305	.04	1300	7.0	17...	1615	114	460	8.0
NOV					MAY				
16...	1245	.10	1400	3.5	16...	1710	1.5	920	20.0
FEB , 1978					JUN				
14...	1220	.01	2500	.0	07...	1715	25	725	19.0
MAR					JUL				
24...	0910	.01	1650	.0	10...	1730	1.0	900	24.0
31...	1415	.10	625	.5	AUG				
APR					22...	1400	.02	900	18.0
07...	1200	137	380	.5	SEP				
11...	1620	231	400	2.0	14...	1410	.01	950	14.5
14...	1140	239	410	3.5					
05056200 - EDMORE COULEE NR EDMORE, ND (LAT 48 20 14 LONG 098 39 33)									
APR , 1978					JUN , 1978				
06...	0935	95	300	1.0	08...	0950	.64	830	15.5
07...	1000	532	360	2.0	JUL				
10...	1050	616	370	4.0	10...	1535	E.01	740	24.0
14...	1510	333	380	6.0					
MAY									
1[illegible]...	1510	3.3	750	17.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05057200 - BALDHILL CREEK NR DAZEY, ND (LAT 47 13 45 LONG 098 07 28)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
05...	1145	2.3	750	9.0	08...	1700	133	405	5.5
NOV					MAY				
01...	1520	2.7	850	9.5	01...	1600	16	830	16.5
DEC					JUN				
06...	1415	4.1	1000	.0	05...	1325	5.6	950	19.5
JAN , 1978					JUL				
05...	1415	1.2	950	.5	05...	1430	1.1	910	20.0
31...	1220	.23	1390	1.0	AUG				
FEB					02...	1030	.37	1250	15.5
28...	1130	.14	1500	.0	SEP				
MAR					06...	1005	.35	1050	19.0
22...	1450	29	310	.5					
27...	1230	152	240	.5					
30...	1820	499	270	1.0					

05058000 - SHEYENNE RIVER BELOW BALDHILL DAM, ND (LAT 47 01 50 LONG 098 05 50)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					MAY , 1978				
05...	0925	8.2	700	11.0	01...	1015	166	560	7.5
NOV					JUN				
02...	1040	22	725	7.5	08...	1625	40	530	19.5
DEC					JUL				
12...	1335	46	775	1.5	07...	1340	10	505	24.5
JAN , 1978					AUG				
06...	1115	52	750	2.0	02...	1520	10	520	24.0
31...	0945	64	800	3.0	SEP				
MAR					05...	1635	10	540	23.5
01...	1040	120	900	3.0					
22...	1720	58	950	4.0					
30...	1400	58	1010	5.5					

05059500 - SHEYENNE RIVER AT WEST FARGO, ND (LAT 46 53 28 LONG 096 54 24)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
20...	1240	63	900	9.5	10...	1825	1140	560	2.0
DEC					14...	1750	1410	670	7.0
02...	1200	65	1050	.0	20...	1230	1420	660	6.0
23...	1100	69	1050	.0	28...	0950	629	625	13.0
JAN , 1978					MAY				
30...	1430	40	1210	.5	23...	1530	232	645	20.0
FEB					JUN				
28...	1020	96	955	.0	30...	0945	121	855	24.5
MAR					JUL				
28...	1925	1560	370	1.0	26...	1730	59	820	25.5
31...	1205	1620	420	.5	SEP				
APR					01...	0840	45	900	20.0
03...	1535	1150	440	.5	27...	1555	87	624	15.5
06...	1245	999	460	1.5					

05059600 - MAPLE RIVER NR HOPE, ND (LAT 47 19 30 LONG 097 47 25)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
04...	1200	.01	2000	13.0	04...	1550	13	475	6.5
13...	1500	.01	3200	10.0	08...	1850	21	490	5.5
MAR , 1978					MAY				
23...	1400	.60	335	.5	01...	1245	2.3	910	13.5
27...	1610	111	220	.5					
30...	1305	50	300	8.0					

05059700 - MAPLE RIVER NR ENDERLIN, ND (LAT 46 37 10 LONG 097 34 25)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
19...	1410	4.8	1500	10.0	03...	[illegible]410	553	400	4.0
NOV					24...	[illegible]30	83	830	7.5
17...	0925	5.6	1510	3.0	MAY				
DEC					22...	1600	20	1575	19.5
21...	1415	5.2	1100	.0	JUN				
JAN , 1978					20...	1745	10	1380	20.5
16...	1400	2.9	1600	.5	JUL				
FEB					07...	1605	48	1250	25.5
16...	1030	3.2	1550	1.5	19...	0950	13	1490	23.0
MAR					AUG				
21...	1030	313	310	1.0	15...	1615	3.2	1400	20.5
23...	1740	1660	275	.5	SEP				
27...	1530	996	300	4.5	21...	1040	2.7	1500	15.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05060500 - RUSH RIVER AT AMENIA, ND (LAT 47 01 00 LONG 097 12 50)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
21...	1415	.66	1900	10.0
MAR , 1978				
24...	1145	328	220	1.0
29...	1045	344	300	.8
APR				
03...	1750	81	440	3.0
24...	1330	14	960	8.5
MAY , 1978				
22...	1245	19	1450	19.0
JUN				
20...	1415	.80	1275	20.0
JUL				
20...	1010	2.7	1200	19.5
SEP				
13...	1440	.76	390	15.0

05066500 - GOOSE RIVER AT HILLSBORO, ND (LAT 47 24 20 LONG 097 03 40)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
05...	1615	2.3	1300	12.0
NOV				
02...	1510	3.5	1600	8.0
DEC				
13...	1235	7.2	1650	.0
JAN , 1978				
19...	1645	3.8	1900	.5
FEB				
13...	1145	2.6	1100	1.0
MAR				
20...	1700	11	1950	1.0
23...	1720	154	385	1.0
29...	1415	1820	340	.5
APR , 1978				
01...	1400	3750	330	.5
27...	1700	212	960	12.5
MAY				
18...	1115	64	1300	19.5
JUN				
19...	1200	78	675	20.5
JUL				
20...	1430	5.4	1100	23.5
AUG				
18...	1530	.75	1130	23.5
SEP				
19...	1600	18	1310	16.0

05082500 - RED RIVER OF THE NORTH AT GRAND FORKS, ND (LAT 47 56 34 LONG 097 03 10)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
25...	1400	1130	600	8.0
DEC				
22...	1150	1390	610	.5
JAN , 1978				
23...	1605	1280	590	.0
FEB				
24...	1245	1100	630	.0
MAR				
21...	1515	1440	390	.5
APR				
03...	1545	22500	255	.5
07...	1145	39900	250	1.0
10...	1525	53300	200	1.5
12...	1025	54800	218	3.0
15...	1110	45800	270	2.5
17...	1510	37100	300	5.0
17...	1511	37100	300	5.0
APR , 1978				
20...	1530	26900	320	7.0
24...	1235	14900	480	8.0
28...	1340	9280	485	11.5
MAY				
02...	1215	7700	540	13.5
09...	1300	5640	530	14.5
25...	1130	4050	630	21.0
JUN				
22...	1435	3100	540	21.0
JUL				
24...	1355	2960	540	24.0
AUG				
16...	1115	1600	500	24.0
25...	1205	900	570	22.5
SEP				
22...	1210	1270	540	15.0

05083600 - MIDDLE BRANCH FOREST RIVER NR WHITMAN, ND (LAT 48 14 50 LONG 098 07 00)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
17...	1715	.02	3400	8.5
APR , 1978				
05...	1800	64	350	.5
09...	1900	221	360	1.5
14...	1715	37	435	5.5
MAY				
15...	1210	.22	1500	16.0
JUN , 1978				
08...	1205	.14	1000	17.0
JUL				
10...	1305	20	410	19.0
19...	1130	.47	875	20.0

05084000 - FOREST RIVER NR FORDVILLE, ND (LAT 48 11 50 LONG 097 43 49)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
17...	1520	12	635	9.5
NOV				
01...	1330	7.9	625	9.5
DEC				
14...	1515	7.4	750	.5
JAN , 1978				
04...	1600	3.3	780	.5
FEB				
08...	1430	2.3	750	.0
MAR				
07...	1215	6.4	750	.5
22...	1120	6.5	650	3.0
27...	1140	204	240	3.0
APR , 1978				
05...	1420	409	370	2.5
MAY				
02...	1155	65	600	13.0
JUN				
09...	1420	88	630	19.0
JUL				
10...	1215	58	570	19.0
AUG				
08...	1210	4.9	650	21.0
SEP				
08...	1155	5.9	600	21.0

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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05085000 - FOREST RIVER AT MINTO, ND (LAT 48 16 10 LONG 097 22 10)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
17...	1240	9.2	645	8.0
31...	1615	7.6	750	10.5
DEC				
05...	1550	1.2	1020	.5
JAN , 1978				
12...	1630	1.3	1080	.5
FEB				
03...	1415	E.10	1000	.5
MAR				
06...	1600	E.20	1300	.0
30...	1920	711	260	1.0
APR				
01...	1520	1100	300	.0
APR , 1978				
05...	1555	494	360	1.0
11...	1040	667	400	4.0
MAY				
10...	1410	71	625	13.5
JUN				
08...	1540	42	745	17.5
JUL				
11...	1145	63	820	20.0
AUG				
07...	1620	7.6	825	25.0
SEP				
08...	1550	3.3	680	23.5

05089000 - SOUTH BRANCH PARK RIVER BELOW HOMME DAM, ND (LAT 48 24 07 LONG 097 46 55)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
13...	1600	.77	960	11.0
NOV				
01...	1615	2.2	750	9.5
23...	1250	3.6	790	.0
DEC				
06...	1345	7.3	830	.5
JAN , 1978				
12...	1300	4.0	900	.5
FEB				
08...	1100	4.7	950	.5
MAR				
07...	1620	4.7	950	.5
27...	1505	7.5	880	6.0
APR , 1978				
11...	1640	502	295	2.5
MAY				
04...	1400	30	420	12.0
JUN				
09...	1110	10	580	15.5
JUL				
11...	1630	2.8	630	24.0
AUG				
07...	1145	2.1	720	23.5
SEP				
08...	1400	1.8	695	22.5

05090000 - PARK RIVER AT GRAFTON, ND (LAT 48 25 24 LONG 097 24 30)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
14...	1050	.28	1080	7.5
NOV				
03...	1625	3.0	1700	8.0
JAN , 1978				
11...	1640	2.7	1410	.0
FEB				
02...	1715	1.6	1500	.0
MAR				
06...	1400	1.4	1100	.5
APR				
09...	1525	2450	370	2.0
11...	1520	2220	330	2.5
APR , 1978				
19...	1330	444.	450	5.0
MAY				
10...	1130	124	750	14.0
JUN				
08...	1315	36	910	18.0
JUL				
11...	1415	5.2	1200	22.0
AUG				
07...	1400	.32	1500	25.0
SEP				
06...	1640	.29	1470	22.0

05092000 - RED RIVER OF THE NORTH AT DRAYTON, ND (LAT 48 34 20 LONG 097 08 50)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
12...	1615	1200	970	8.5
NOV				
04...	1145	1000	900	6.5
DEC				
12...	1350	1380	650	.0
JAN , 1978				
11...	1215	1360	780	.0
FEB				
02...	1230	1100	1690	.0
MAR				
09...	1355	1190	520	.5
28...	1225	4880	560	.0
APR				
07...	1630	28920	275	1.0
09...	1310	43900	290	2.0
09...	1405	54600	--	--
13...	1405	51400	340	4.0
APR , 1978				
17...	1345	56100	315	7.0
21...	1245	45200	390	10.0
26...	1210	28900	455	9.5
MAY				
01...	1415	19100	500	12.0
04...	1245	14000	600	14.5
08...	1420	8020	650	14.0
12...	1330	6050	590	15.0
JUN				
08...	1030	3860	655	18.0
JUL				
12...	1730	3570	675	24.5
AUG				
10...	1155	1910	600	25.0
SEP				
06...	1320	1030	790	24.0

05092200 - PEMBINA COUNTY DRAIN 20 NR GLASSTON, ND (LAT 48 41 49 LONG 097 23 03)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977				
11...	1335	.01	2120	7.0
MAR , 1978				
27...	1935	73	295	.5
28...	1420	E30	300	.5
APR				
04...	1400	22	345	1.0
19...	1105	3.3	365	1.0
MAY , 1978				
04...	1110	E.02	520	16.0
26...	1135	.38	1800	20.0
SEP				
13...	0820	1.4	1120	9.5

E - Estimated.

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PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05098700 - HIDDEN ISLAND COULEE NR HANSBORO, ND (LAT 48 57 10 LONG 099 25 35)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
APR , 1978				
04...	1445	E45	320	1.5
07...	1330	90	315	.5
MAY				
03...	1050	.71	800	11.5
JUN , 1978				
06...	1525	.02	1200	14.5

05098800 - CYPRESS CREEK NR SARLES, ND (LAT 48 56 35 LONG 098 57 05)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
APR , 1978				
04...	1635	E30	345	1.0
06...	1200	194	425	1.0
08...	1515	173	440	1.0
MAY				
03...	1335	.41	850	17.0
JUN , 1978				
06...	1715	.30	825	16.5
JUL				
13...	1050	.15	900	19.5

05100000 - PEMBINA RIVER AT NECHE, ND (LAT 48 59 20 LONG 097 33 05)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
12...	1015	35	875	5.5
NOV				
02...	0935	14	900	8.0
DEC				
07...	1300	.29	1050	--
JAN , 1978				
12...	1415	2.4	1350	.0
FEB				
01...	1345	1.5	1250	.5
APR				
09...	1630	2550	400	.5
13...	1445	1490	410	.5
13...	1446	1490	410	.5
APR , 1978				
18...	1250	960	510	8.0
MAY				
03...	1000	738	700	15.0
JUN				
07...	1605	238	845	17.5
JUL				
12...	1200	82	875	22.0
AUG				
09...	1450	34	900	23.0
SEP				
13...	1135	58	895	14.0

05100500 - HERZOG CREEK NR CONCRETE, ND (LAT 48 45 13 LONG 097 54 22)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
13...	1850	.19	825	10.0
NOV , 1977				
03...	1230	E.01	850	8.0

05101000 - TONGUE RIVER NR AKRA, ND (LAT 48 46 40 LONG 097 42 55)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
11...	1730	2.9	540	8.0
NOV				
02...	1700	3.0	550	9.0
DEC				
13...	1345	9.3	640	1.5
JAN , 1978				
12...	1620	3.4	740	2.0
31...	1415	3.7	710	2.0
MAR				
08...	1110	12	800	2.0
27...	1730	5.1	750	1.5
APR				
07...	2000	372	475	.5
MAY , 1978				
04...	0930	50	480	12.0
JUN				
07...	1210	8.1	585	17.5
20...	1735	.08	660	21.0
JUL				
12...	0915	.10	625	18.5
AUG				
08...	1650	2.7	520	21.0
SEP				
13...	1325	.25	515	13.5

05113600 - LONG CREEK NR NOONAN, ND (LAT 48 58 52 LONG 103 04 34)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
04...	1145	.01	2000	8.0
MAR , 1978				
22...	1045	180	480	.0
28...	1050	643	395	.0
APR				
04...	1030	556	375	4.0
MAY				
03...	1110	27	1160	13.0
JUN				
06...	1340	43	1000	18.0
JUL , 1978				
05...	1030	208	1375	23.0
10...	1645	160	1200	22.0
14...	0950	1699	500	20.0
AUG				
02...	1215	78	800	18.0
SEP				
06...	1155	9.6	920	20.0

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 5. HUDSON BAY BASIN

RED RIVER OF THE NORTH BASIN

05116500 - DES LACS RIVER AT FOXHOLM, ND (LAT 48 22 14 LONG 101 34 11)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
07...	1020	1.7	1750	7.0	05...	1045	46	835	5.0
NOV					05...	1046	46	835	5.0
03...	1300	1.8	1950	4.0	MAY				
DEC					04...	1330	8.1	1620	15.0
02...	1125	1.2	2680	.0	JUN				
JAN , 1978					02...	0930	15	1400	12.5
12...	1510	.22	2320	.0	29...	1150	14	1020	25.0
FEB					AUG				
07...	1500	E.02	2150	.0	04...	1425	1.1	1100	20.0
MAR					SEP				
25...	1459	193	330	.0	08...	1415	.78	1360	21.5
28...	1500	676	285	.0	22...	1115	--	1700	11.0
30...	1125	285	390	.0					

05117500 - SOURIS RIVER ABOVE MINOT, ND (LAT 48 14 45 LONG 101 22 15)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
07...	1330	11	1020	7.5	06...	1115	158	710	3.5
NOV					MAY				
03...	1000	3.9	1120	5.0	04...	1115	51	880	14.0
DEC					JUN				
02...	1350	--	1520	.5	02...	1340	118	900	15.0
JAN , 1978					29...	1020	123	930	24.5
12...	1120	1.6	1630	.0	AUG				
FEB					04...	1200	345	790	18.5
07...	1700	.48	1750	.0	SEP				
MAR					08...	1105	44	870	21.0
08...	1100	.88	1800	.5	22...	0925	--	870	11.0
25...	1150	107	870	.0					
28...	0850	--	330	.0					

05123400 - WILLOW CREEK NR WILLOW CITY, ND (LAT 48 35 20 LONG 100 26 30)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
APR , 1978					JUN , 1978				
04...	1345	175	450	2.0	05...	2215	12	1500	21.0
07...	1720	411	520	3.5	28...	2115	.50	2190	26.5
13...	0945	230	740	2.5	AUG				
13...	0946	230	740	2.5	03...	1340	.44	1540	19.5
MAY									
03...	1735	23	1210	17.0					

05123510 - DEEP RIVER NR UPHAM, ND (LAT 48 35 03 LONG 100 51 44)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
APR , 1978					JUN , 1978				
05...	1050	68	650	1.0	06...	1455	E.06	900	18.5
07...	1325	76	580	.5	29...	1410	E.03	870	25.5
12...	1030	23	540	3.0					
MAY									
03...	2125	4.9	910	17.0					

05123600 - EGG CREEK NR GRANVILLE, ND (LAT 48 21 18 LONG 100 49 19)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
MAR , 1978					JUN , 1978				
29...	1210	127	330	3.5	06...	1300	.45	1800	18.0
APR					29...	1625	E2.5	1570	23.5
04...	1230	63	510	4.0	AUG				
MAY					03...	2030	E.05	2250	17.5
03...	1020	3.8	1140	11.5					

05123700 - CUT BANK CREEK AT N LAKE OUTLET NR GRANVILLE, ND (LAT 48 23 10 LONG 100 46 00)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
APR , 1978					JUN , 1978				
05...	1220	2.1	1050	.5	06...	1410	E.70	1190	19.5
07...	1100	2.9	900	3.5	29...	1555	E.90	1240	25.5
11...	1820	5.4	795	6.0					
MAY									
03...	1120	4.9	960	13.0					

05123900 - BOUNDARY CREEK NR LANDA, ND (LAT 48 48 46 LONG 100 51 46)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE (DEG C) (00010)
APR , 1978					MAY , 1978				
04...	1710	144	460	3.0	04...	1950	.34	1140	14.0
07...	1425	69	550	2.0	JUN				
12...	1345	44	510	2.5	01...	2050	E.02	1260	14.0

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

YELLOWSTONE RIVER BASIN

06329597 - CHARBONNEAU CREEK NR CHARBONNEAU, ND (LAT 47 51 10 LONG 103 47 40)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
06...	1125	.91	2760	6.0
NOV				
03...	1555	.58	2650	8.0
DEC				
02...	1305	.82	3000	.0
JAN , 1978				
06...	1330	.70	3300	.0
30...	1610	.04	3150	.0
MAR				
02...	1220	1.1	2800	.0
20...	1045	159	200	.0
22...	1550	710	450	.0
24...	1645	806	450	.0
27...	1440	714	235	2.0
MAR , 1978				
31...	0940	165	355	7.0
APR				
03...	1555	21	680	5.0
MAY				
04...	0910	2.0	1890	12.0
JUN				
08...	1335	3.6	1420	21.0
JUL				
04...	1300	3.7	1050	23.0
AUG				
03...	1025	.25	2200	17.0
SEP				
08...	0945	.03	2740	19.0

WHITE EARTH RIVER BASIN

06332000 - WHITE EARTH RIVER AT WHITE EARTH, ND (LAT 48 22 35 LONG 102 46 00)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
04...	1535	7.1	1970	10.0
NOV				
03...	1025	4.2	2000	3.0
DEC				
01...	1655	3.8	2550	.0
JAN , 1978				
05...	1045	3.8	1950	.0
FEB				
01...	1520	2.7	1875	.0
MAR				
03...	1150	2.8	1800	.0
21...	1040	127	490	.0
23...	1820	375	550	.0
29...	1000	634	570	1.5
APR , 1978				
05...	1135	118	810	4.0
MAY				
03...	1525	20	1400	14.0
JUN				
07...	0940	33	1690	14.0
JUL				
06...	0915	92	1590	21.0
AUG				
01...	1510	9.3	1800	21.0
SEP				
07...	0840	1.5	1980	16.0

SHELL CREEK BASIN

06332520 - SHELL CREEK NR PARSHALL, ND (LAT 48 03 11 LONG 102 08 10)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
03...	1610	2.1	2660	13.0
31...	1545	18	2400	8.0
NOV				
28...	1540	.51	2550	.0
JAN , 1978				
03...	1605	.02	--	.0
MAR				
21...	1410	150	350	.5
23...	1310	280	360	.0
29...	1300	184	900	5.5
29...	1340	186	900	5.0
APR , 1978				
05...	1420	55	1420	8.0
MAY				
05...	1140	8.5	2450	13.0
JUN				
05...	1410	7.6	2450	22.0
JUL				
03...	1340	4.5	2400	26.0
AUG				
03...	1420	1.0	2400	21.0
SEP				
05...	1325	.25	2540	2.5

LITTLE MISSOURI RIVER BASIN

06335000 - LITTLE BEAVER CREEK NR MARMARTH, ND (LAT 46 16 29 LONG 103 58 33)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977				
06...	1040	8.0	890	6.0
NOV				
02...	1050	3.7	1270	5.0
DEC				
08...	1215	2.0	1890	.0
JAN , 1978				
11...	1220	2.3	1600	.0
FEB				
01...	1220	1.2	1700	.0
MAR				
01...	1335	1.4	1640	.0
22...	1155	1450	437	.0
24...	1435	979	275	.5
27...	1850	5290	261	4.0
MAR , 1978				
29...	1155	1580	322	5.0
APR				
10...	1505	97	1120	8.0
MAY				
04...	1105	70	1500	11.0
JUN				
01...	1140	220	1550	11.0
28...	1310	59	2000	24.0
AUG				
03...	1100	9.6	2000	17.0
SEP				
07...	1035	3.5	1640	21.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

LITTLE MISSOURI RIVER BASIN

06335500 - LITTLE MISSOURI RIVER AT MARMARTH, ND (LAT 46 17 44 LONG 103 55 06)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					MAR , 1978				
06...	1440	1050	750	7.0	29...	1600	17800	305	7.0
NOV					APR				
02...	1300	49	1100	8.0	10...	1755	1090	745	7.5
DEC					MAY				
09...	1145	10	2250	.0	04...	1525	329	1310	10.0
JAN , 1978					JUN				
11...	1605	12	2000	.0	01...	1440	3470	1160	11.0
FEB					28...	1525	390	1400	20.0
01...	1555	3.6	2150	.0	AUG				
MAR					03...	1335	175	1460	20.5
01...	1720	4.4	2350	.0	SEP				
24...	1725	10060	315	.0	07...	1350	37	1040	26.0
27...	1625	24000	262	4.0					

KNIFE RIVER BASIN

06339500 - KNIFE RIVER NR GOLDEN VALLEY, ND (LAT 47 09 40 LONG 102 03 39)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
10...	1710	21	1400	7.0	06...	1520	713	840	8.0
NOV					25...	1410	104	1560	11.0
17...	1455	7.2	1900	.5	MAY				
DEC					23...	1415	36	1930	21.0
22...	1435	12	2870	.0	JUN				
JAN , 1978					18...	1555	25	1950	20.0
17...	1430	3.0	3300	1.0	JUL				
FEB					20...	1205	29	1260	22.0
20...	1320	1.1	2980	1.0	AUG				
MAR					18...	1045	19	1080	19.0
19...	1315	19	2830	2.0	SEP				
22...	1410	2600	2750	1.0	15...	1530	732	670	15.0
25...	1605	4073	310	1.0	20...	1600	61	780	10.0
28...	1505	6396	290	4.0					
30...	1405	3490	330	8.0					

06340200 - WEST BRANCH OTTER CREEK NR BEULAH, ND (LAT 47 08 05 LONG 101 39 35)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
21...	1140	E.08	1250	9.5	13...	1350	4.4	1200	6.5
DEC					27...	1100	2.0	1725	12.5
23...	1345	.12	2220	--	MAY				
MAR , 1978					23...	1045	E.14	2050	21.0
20...	1210	65	260	.5	JUN				
22...	1350	136	300	.5	12...	1245	--	1700	21.0
24...	1230	75	250	.5	28...	1031	E.05	1670	23.0
28...	1310	69	290	.5	JUL				
31...	1430	40	415	7.0	21...	1330	.06	1312	23.0

PAINTED WOODS CREEK BASIN

06341800 - PAINTED WOODS CREEK NR WILTON, ND (LAT 47 16 30 LONG 100 47 30)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
18...	1200	1.8	1350	7.5	05...	1540	51	700	8.0
NOV					26...	1520	9.1	1500	14.5
23...	1340	.36	2000	1.0	MAY				
DEC					25...	1340	2.6	1900	23.0
19...	1325	.20	2000	.0	JUN				
JAN , 1978					27...	1620	.32	1000	23.5
26...	1335	.15	2400	.0	JUL				
MAR					25...	1410	.17	1010	27.0
23...	1550	1070	240	1.0	SEP				
27...	1705	293	390	1.0	25...	1540	.10	850	15.0
30...	1200	138	425	8.0					

SQUARE BUTTE CREEK BASIN

06342260 - SQUARE BUTTE CREEK BELOW CENTER, ND (LAT 47 03 25 LONG 101 11 35)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
14...	1325	1.5	1000	10.5	06...	1245	182	480	14.0
NOV					24...	1100	29	550	15.0
21...	1415	1.8	1150	.5	MAY				
DEC					26...	1215	2.2	1125	20.0
22...	1400	2.4	1440	.0	JUN				
JAN , 1978					29...	1050	1.5	1125	21.5
23...	1000	1.4	1200	.0	JUL				
FEB					25...	1000	1.7	1150	22.0
24...	1140	51	1500	.0	AUG				
MAR					24...	0940	1.4	1100	17.5
20...	0920	8.4	955	5.5	SEP				
22...	1130	251	1240	14.0	25...	1031	1.5	1150	14.0
24...	1555	604	1000	11.0					
28...	1040	1020	630	10.0					
30...	1530	656	555	11.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

BURNT CREEK BASIN

06342450 - BURNT CREEK NR BISMARCK, ND (LAT 46 54 54 LONG 100 48 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
NOV , 1977					APR , 1978				
23...	1150	1.4	1300	.0	05...	1015	26	600	6.0
DEC					26...	1015	9.4	640	9.0
19...	1530	.76	900	.0	MAY				
JAN , 1978					25...	1120	5.1	1250	19.5
26...	1640	.20	1550	.0	JUN				
FEB					27...	0930	9.0	1300	18.5
21...	1540	.08	1400	.0	JUL				
MAR					25...	1530	.01	1300	22.0
14...	1320	1.7	1060	.0	SEP				
23...	1315	498	160	.5	28...	1550	.02	800	12.5
25...	1600	196	190	.5					
28...	1005	292	180	.5					
30...	1000	121	340	1.0					

HEART RIVER BASIN

06345500 - HEART RIVER NR RICHARDTON, ND (LAT 46 44 46 LONG 102 18 27)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					MAR , 1978				
12...	1100	307	985	5.0	29...	0840	7640	300	2.0
NOV					APR				
01...	1030	38	1620	5.0	05...	1145	690	920	7.0
DEC					MAY				
12...	1220	21	2420	.5	01...	1530	118	1670	15.0
JAN , 1978					JUN				
04...	1525	20	1930	.0	01...	0845	78	1880	11.0
FEB					JUL				
03...	1230	9.2	1500	.0	05...	1410	70	1720	26.0
MAR					25...	1450	25	1780	26.0
05...	1600	50	2460	.0	AUG				
19...	1625	137	1370	1.5	01...	1045	19	1680	23.0
22...	1755	3081	420	.0	SEP				
24...	1020	5000	420	1.0	01...	0900	35	1800	20.0
25...	1020	4520	400	--					
27...	1400	9772	290	1.5					

06348000 - HEART RIVER NR LARK, ND (LAT 46 36 37 LONG 101 22 54)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
20...	1100	230	1000	8.0	04...	1505	4440	480	4.0
NOV					28...	1200	513	850	11.0
25...	1140	44	1000	.0	MAY				
JAN , 1978					24...	1430	428	900	22.0
27...	1120	20	1450	.0	JUN				
FEB					28...	1415	394	850	24.5
23...	1500	32	1200	.0	AUG				
MAR					01...	1450	106	1250	24.0
22...	1115	1570	450	.5	23...	1110	89	1220	19.5
24...	1220	7300	560	1.0	SEP				
28...	1400	10100	420	2.0	26...	1115	42	1220	16.0
30...	1510	6090	520	4.0					

06348500 - SWEETBRIAR CREEK NR JUDSON, ND (LAT 46 51 06 LONG 101 15 10)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
18...	1420	4.7	710	8.0	06...	1615	159	290	5.0
NOV					24...	1510	14	470	8.0
25...	1440	1.8	1150	.0	MAY				
DEC					22...	1320	4.0	650	22.0
21...	1400	2.8	920	.0	JUN				
JAN , 1978					29...	1415	3.8	598	22.5
27...	1500	.60	1000	.0	JUL				
FEB					27...	0945	.38	1250	21.0
22...	1345	.64	1120	.0	AUG				
MAR					23...	1335	1.3	710	20.0
21...	1430	165	730	.0	SEP				
23...	1500	1070	335	1.0	26...	1325	.57	1020	16.0
24...	1610	763	230	1.0					
28...	1715	1030	145	1.0					

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

CANNONBALL RIVER BASIN

06351000 - CANNONBALL RIVER BELOW BENTLEY, ND (LAT 46 21 30 LONG 102 02 30)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					MAR , 1978				
07...	1535	144	1090	5.0	29...	1355	9290	330	7.0
NOV					31...	1225	3610	480	6.0
03...	1305	23	1600	5.0	APR				
DEC					05...	1140	1020	800	6.5
13...	1240	19	2350	.0	MAY				
JAN , 1978					02...	1055	126	2100	12.0
12...	1420	11	2390	.0	JUN				
FEB					02...	1625	68	2520	15.0
03...	1215	11	2190	.0	30...	1125	230	1400	22.0
MAR					AUG				
07...	1205	13	1980	.0	01...	1025	22	1040	19.5
21...	1050	173	1000	.0	SEP				
23...	1115	671	750	.5	06...	1045	14	1990	21.0
26...	1745	6494	420	.5					

06351680 - WHITE BUTTE FORK CEDAR CREEK NR SCRANTON, ND (LAT 46 19 20 LONG 102 59 45)

OCT , 1977					MAY , 1978				
12...	1830	9.0	1610	6.0	05...	1530	2.9	2810	13.0
NOV					30...	1605	1.6	3380	14.0
02...	1630	.21	2890	6.5	JUN				
DEC					29...	1330	.45	3150	23.0
09...	1510	.51	3200	.0	AUG				
MAR , 1978					03...	1790	.01	4450	21.0
25...	1630	208	3620	1.0	03...	1725	.01	4450	21.5
29...	1855	190	330	5.0					
APR									
07...	1625	17	970	7.0					

06352000 - CEDAR CREEK NR HAYNES, ND (LAT 46 09 15 LONG 102 28 25)

OCT , 1977					MAR , 1978				
07...	1225	18	1280	5.0	30...	1820	4246	400	5.0
NOV					APR				
03...	1055	3.9	1950	6.0	05...	1840	409	805	7.0
DEC					MAY				
13...	1510	5.0	2810	.0	02...	1845	50	1960	14.0
JAN , 1978					JUN				
12...	1135	3.4	3250	.0	02...	1240	50	2950	15.0
FEB					29...	1715	11	2550	24.0
02...	1615	2.4	2410	.0	AUG				
MAR					01...	1710	5.3	2350	23.0
07...	1700	3.7	2390	.0	SEP				
21...	1435	6.3	1750	.5	06...	1515	2.8	2200	24.0
25...	1340	478	440	.5					
28...	1145	6020	560	.5					

06354825 - ONE-MILE CREEK NR FT. YATES, ND (LAT 46 03 56 LONG 100 40 10)

MAR , 1978					JUN , 1978				
20...	1210	4.7	460	.0	26...	1210	6.6	750	20.0
22...	1525	144	105	.5	JUL				
24...	1910	57	135	.0	26...	1105	E.04	1360	--
27...	1430	69	130	6.5	AUG				
31...	1400	20	190	8.0	22...	1050	.04	950	17.5
APR					SEP				
07...	1340	6.8	380	5.0	27...	0940	.03	1250	10.5
27...	1150	1.2	800	12.5					
MAY									
23...	1225	.28	1200	23.5					

GRAND RIVER BASIN

06355000 - NORTH FORK GRAND RIVER AT HALEY, ND (LAT 45 57 39 LONG 103 07 09)

OCT , 1977					APR , 1978				
13...	1735	1.4	2410	11.0	06...	1850	482	400	5.5
NOV					MAY				
01...	1600	1.4	2390	6.0	05...	1255	39	1370	11.0
DEC					10...	1310	150	1210	14.0
07...	1545	2.0	2750	.0	JUN				
JAN , 1978					02...	1020	67	1440	14.0
10...	1630	.01	2590	.0	JUL				
31...	1510	.41	2390	.0	05...	1655	18	1800	26.0
MAR					AUG				
02...	1330	1.2	2750	.0	07...	1900	2.4	2200	24.0
25...	1135	270	2350	.5	SEP				
28...	1450	2210	1290	3.0	07...	1850	1.1	2590	23.0
30...	1305	2200	920	4.0					

E - Estimated.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PART 6. MISSOURI RIVER BASIN

JAMES RIVER BASIN

06467608 - JAMES RIVER NR MANFRED, ND (LAT 47 30 40 LONG 099 49 40)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
MAR , 1978					MAY , 1978				
22...	1745	255	175	1.0	01...	1615	2.7	780	18.5
24...	1340	126	180	.5	31...	1205	1.1	800	16.0
27...	1745	171	205	6.0	JUL				
31...	1245	80	300	8.5	06...	1620	.57	680	25.0
APR					31...	1430	<.01	1005	22.5
13...	1910	12	540	5.5					

06468170 - JAMES RIVER NR GRACE CITY, ND (LAT 47 33 29 LONG 098 51 45)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
06...	1730	.08	1700	9.0	13...	1445	190	350	4.0
NOV					MAY				
02...	1220	E.10	1760	7.0	02...	1045	18	490	14.5
30...	1255	.36	2050	.0	31...	1830	3.3	590	17.5
JAN , 1978					JUN				
04...	1130	.13	1750	.0	21...	1715	E.13	1055	25.0
FEB					JUL				
08...	1750	.00	1410	.0	06...	1015	.23	990	25.0
MAR					AUG				
28...	0910	29	240	.0	01...	1020	.07	1590	21.0
31...	1600	739	300	1.5	SEP				
APR					06...	1315	E.01	1800	28.5
01...	0830	590	320	1.0					
04...	1510	324	280	3.5					

06469400 - PIPESTEM CREEK NR PINGREE, ND (LAT 47 10 03 LONG 098 58 07)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
MAR , 1978					MAY , 1978				
20...	1740	138	175	.5	02...	1245	11	590	16.0
22...	1025	321	175	1.5	JUN				
28...	1155	598	260	4.0	01...	1025	3.0	760	12.5
APR					21...	1330	.80	695	19.0
01...	1230	366	320	6.0	JUL				
13...	1205	70	420	4.0	05...	1830	.26	840	29.0

06470000 - JAMES RIVER AT JAMESTOWN, ND (LAT 46 53 22 LONG 098 40 58)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)
OCT , 1977					APR , 1978				
06...	1310	3.6	640	8.0	12...	1915	72	535	4.5
NOV					MAY				
01...	1810	4.3	1100	9.0	02...	1505	57	510	14.5
JAN , 1978					JUN				
05...	1140	2.9	1310	.0	01...	1350	142	505	16.0
FEB					JUL				
08...	1115	2.2	1050	.0	05...	1435	83	505	27.0
MAR					AUG				
09...	1110	2.7	1230	1.5	01...	1910	92	555	22.5
21...	1800	222	320	1.5	SEP				
28...	1410	68	410	2.5	07...	1000	19	740	22.0

E - Estimated.

BENSON COUNTY

480230098484001. Local number, 153-063-30CBC.
LOCATION.--Lat 48°02'30", long 098°48'40", Hydrologic Unit 09020201.
Owner: North Dakota State Water Commission.
AQUIFER.--Spiritwood.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 200 ft (61 m), cased to 137 ft (41.8 m), plastic pipe, No. 18 slot screen set 137 to 143 ft (41.8 to 43.6 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,445 ft (440 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--June 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.00 ft (5.49 m) below land-surface datum, Dec. 1, 1975; lowest measured, 25.05 ft (7.64 m) below land-surface datum, Mar. 4, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 15	19.48	MAR 13	19.67	JUN 5	18.71	SEPT 13	19.22

BENSON COUNTY

480958099154801. Local number, 154-067-15BBB.
LOCATION.--Lat 48°09'58", long 099°15'48", Hydrologic Unit 09020201.
Owner: North Dakota State Water Commission.
AQUIFER.--Spiritwood.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 180 ft (54.9 m), cased to 147 ft (44.8 m), plastic pipe, No. 18 slot screen set 147 to 153 ft (44.8 to 46.6 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,475 ft (450 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--June 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.50 ft (9.91 m) below land-surface datum, Dec. 2, 1975; lowest measured, 33.80 ft (10.30 m) below land-surface datum, Mar. 15, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	33.70	MAR 15	33.80	JUN 7	33.23	SEPT 13	33.29

BENSON COUNTY

481041099442701. Local number, 154-071-11AAD1.
LOCATION.--Lat 48°10'41", long 099°44'27", Hydrologic Unit 09020202.
Owner: North Dakota State Water Commission.
AQUIFER.--Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 100 ft (30.5 m), cased to 42 ft (12.8 m), plastic pipe, No. 12 slot screen set 42 to 45 ft (12.8 to 13.7 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m). Measuring point: Top of casing 2.0 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--August 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.84 ft (2.08 m) below land-surface datum, Apr. 23, 1969; lowest measured, 9.05 ft (2.76 m) below land-surface datum, Mar. 13, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	8.49	MAR 13	9.05	JUN 6	7.10	SEPT 13	7.82

BOWMAN COUNTY

461534103491701. Local number, 132-105-16BDB.
LOCATION.--Lat 46°15'34", long 103°49'17", Hydrologic Unit 10110203.
Owner: North Dakota State Water Commission.
AQUIFER.--Hell Creek-Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 475 ft (145 m), cased to 441 ft (134 m), steel pipe, No. 12 slot screen set 441 to 459 ft (134 to 140 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 3,010 ft (917 m). Measuring point: Top of casing 3.40 ft (1.04 m) above land-surface datum.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 270.15 ft (82.34 m) below land-surface datum, Feb. 25, 1973; lowest measured, 271.73 ft (82.82 m) below land-surface datum, Jan. 11, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	270.62	MAR 1	270.83	JUN 1	270.90	SEPT 7	271.04

BURLEIGH COUNTY

464943100305801. Local number, 139-078-27CBB.
LOCATION.--Lat 46°49'43", long 100°30'58", Hydrologic Unit 10130103.
Owner: North Dakota State Water Commission.
AQUIFER.--McKenzie.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 255 ft (77.7 m), cased to 200 ft (61 m), plastic pipe, slotted 200 to 220 ft (61 to 67 m) below land-surface datum, gravel packed.
DATUM.--Altitude of land-surface datum is 1,713 (522 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.
PERIOD OF RECORD.--August 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.30 ft (6.80 m) below land-surface datum, June 17, 1970; lowest measured, 32.44 ft (9.89 m) below land-surface datum, Aug. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	28.85	DEC 29	26.89	MAY 25	24.89	AUG 22	28.52
OCT 27	28.41	MAR 28	25.74	JUN 26	24.65	SEPT 19	27.81
DEC 5	28.13			JUL 24	25.08		

CASS COUNTY

464359096541301. Local number, 138-049-29CCC.
LOCATION.--Lat 46°43'59", long 096°54'13", Hydrologic Unit 09020105.
Owner: North Dakota State Water Commission.
AQUIFER.--West Fargo.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 317 ft (96.6 m), cased to 278 ft (84.7 m), plastic pipe, screens set at 278 to 280 ft (84.7 to 85.3 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 912 ft (278 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
PERIOD OF RECORD.--August 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.17 ft (9.81 m) below land-surface datum, Aug. 1, 1964; lowest measured, 44.77 ft (13.65 m) below land-surface datum, Sept. 20, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	41.45	MAR 14	41.50	JUN 19	42.45	SEPT 20	44.77

DIVIDE COUNTY

485649103155701. Local number, 163-97-15BCC.
LOCATION.--Lat 48°56'49", long 103°15'57", Hydrologic Unit 09010001.
Owner: North Dakota State Water Commission.
AQUIFER.--Yellowstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 575 ft (175 m), cased to 546 ft (166 m), steel pipe, No. 12 slot screen set 546 to 558 ft (166 to 170 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,915 ft (584 m). Measuring point: top of casing 1.50 ft (0.46 m) above land-surface datum.
PERIOD OF RECORD.--August 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.90 ft (3.32 m) below land-surface datum, June 22, 1976; lowest measured, 14.48 ft (4.41 m) below land-surface datum, Aug. 9, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	10.98						

DUNN COUNTY

471323102290101. Local number, 143-093-09BCB.
LOCATION.--Lat 47°13'23", long 102°29'01", Hydrologic Unit 10130201.
Owner: North Dakota State Water Commission.
AQUIFER.--Sentinel Butte.
WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 965 ft (294 m), cased to 378 ft (115 m), steel pipe, No. 12 slot screen set 378 to 396 ft (115 to 121 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 2,133 ft (650 m). Measuring point: Top of casing 2.10 ft (0.64 m) above land-surface datum.
PERIOD OF RECORD.--February 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.60 ft (28.22 m) below land-surface datum, March 25, 1978; lowest measured, 93.49 ft (28.50 m) below land-surface datum, Dec. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	93.49	MAR 25	92.60	JUNE 20	92.95	SEPT 20	93.14

EDDY COUNTY

473720098592401. Local number, 148-065-19DAA.
LOCATION.--Lat 47°37'20", long 098°59'24", Hydrologic Unit 10160001.
Owner: North Dakota State Water Commission.
AQUIFER.--New Rockford.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 242 ft (74 m), cased to 220 ft (67 m), plastic pipe, slotted from 210 to 220 ft (64 to 67 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,526 ft (465 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.
PERIOD OF RECORD.--September 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.51 ft (13.26 m) below land-surface datum, June 28, 1966; lowest measured, 50.49 ft (15.39 m) below land-surface datum, Sept. 6, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	47.08	JAN 4	46.53	MAY 1	45.67	AUG 1	48.15
NOV 2	46.99	MAR 1	46.39	MAY 31	45.89	SEPT 6	50.49
NOV 30	46.57	APR 13	45.80	JUL 6	47.56		

EMMONS COUNTY

463632100171901. Local number, 136-076-07CBC.
LOCATION.--Lat 46°36'32", long 100°17'19", Hydrologic Unit 10130103.
Owner: North Dakota State Water Commission.
AQUIFER.--Long Lake.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 150 ft (45.7 m), cased to 117 ft (35.7 m), plastic pipe, No. 12 slot screen set at 117 to 123 ft (35.7 to 37.5 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,735 ft (529 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.10 ft (0.64 m) below land-surface datum, June 6, 1978; lowest measured, 8.32 ft (2.54 m) below land-surface datum, Sept. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	6.34	JUN 6	2.10	SEPT 12	4.65		

GRAND FORKS COUNTY

474957097343501. Local number, 150-054-04CCD.
LOCATION.--Lat 47°49'57", long 097°34'35", Hydrologic Unit 09020307.
Owner: North Dakota State Water Commission.
AQUIFER.--Elk Valley.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 126 ft (38.4 m), cased to 40 ft (12.2 m), plastic pipe, No. 12 slot screen set 40 to 43 ft (12.2 to 13.1 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,127 ft (344 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
PERIOD OF RECORD.--September 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.48 ft (0.76 m) below land-surface datum, May 6, 1966; lowest measured, 7.96 ft (2.43 m) below land-surface datum, Mar. 7, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	5.48	JUN 9	4.42	SEPT 5	5.95		

GRANT COUNTY

460159101500401. Local number, 130-089-32DDA.
LOCATION.--Lat 46°01'59", long 101°50'04", Hydrologic Unit 10130205.
Owner: North Dakota State Water Commission.
AQUIFER.--Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 2 in (0.05 m), depth 860 ft (262 m), cased to 525 ft (160 m), steel pipe, No. 12 slot screen set 525 to 543 ft (160 to 166 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 2,165 ft (660 m). Measuring point: Top of casing 4.00 ft (1.22 m) above land-surface datum.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.49 ft (16.91 m) below land-surface datum, Apr. 10, 1973; lowest measured, 57.00 ft (17.37 m) below land-surface datum, Nov. 7, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	56.21	MAR 7	56.24	JUN 2	56.11	SEPT 6	56.49

GRIGGS COUNTY

471612098113101. Local number, 144-059-20CCC.
LOCATION.--Lat 47°16'12", long 098°11'31", Hydrologic Unit 09020203.
Owner: North Dakota State Water Commission.
AQUIFER.--Spiritwood.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 240 ft (73 m), cased to 158 ft (48 m), plastic pipe, No. 25 slot screen set 158 to 161 ft (48 to 49 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,430 ft (436 m). Measuring point: Top of casing 2.0 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.84 ft (13.97 m) below land-surface datum, Apr. 5, 1977; lowest measured, 86.99 ft (26.51 m) below land-surface datum, Aug. 10, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	53.04	MAR 7	48.33	MAY 2	47.75	AUG 8	80.76
DEC 6	51.00	APR 5	47.95	JUN 12	56.03	SEPT 7	72.40
JAN 24	49.02			JUL 12	70.23		

GRIGGS COUNTY

473425098232901. Local number, 147-061-01CCC.
LOCATION.--Lat 47°34'25", long 098°23'29", Hydrologic Unit 09020203.
Owner: North Dakota State Water Commission.
AQUIFER.--Spiritwood.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 340 ft (104 m), cased to 237 ft (72 m), plastic pipe, No. 25 slot screen set 237 to 240 ft (72 to 73 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,525 ft (465 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.82 ft (8.18 m) below land-surface datum, May 19, 1976; lowest measured, 96.10 ft (29.3 m) below land-surface datum, Aug. 12, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	31.67	APR 6	29.40	JUN 13	42.52	AUG 24	79.94
DEC 6	30.35	MAY 4	28.60	JUL 13	56.19	SEPT 6	65.46
MAR 9	29.57			AUG 9	92.28		

GRIGGS COUNTY

473600098065901. Local number, 148-059-36AAB.
LOCATION.--Lat 47°36'00", long 098°06'59", Hydrologic Unit 09020203.
Owner: North Dakota State Water Commission.
AQUIFER.--McVille.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 180 ft (54.9 m), cased to 137 ft (41.8 m), plastic pipe, No. 12 slot screen set 137 to 143 ft (41.8 to 43.6 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,320 ft (402 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--October 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.07 ft (2.15 m) below land-surface datum, June 5, 1971; lowest measured, 12.09 ft (3.69 m) below land-surface datum, Aug. 9, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	11.65	APR 5	10.79	JUN 13	10.60	AUG 9	12.09
JAN 24	11.21	MAY 3	9.95	JUL 13	11.75	SEPT 5	11.14
MAR 7	11.80						

HETTINGER COUNTY

463153102521001. Local number, 135-097-04DCA.
LOCATION.--Lat 46°31'53", long 102°52'10", Hydrologic Unit 10130204.
Owner: North Dakota State Water Commission.
AQUIFER.--Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 1,790 ft (546 m), cased to 1,320 ft (402 m), steel pipe, open hole.
DATUM.--Altitude of land-surface datum is 2,567 ft (782 m). Measuring point: Top of casing 0.70 ft (0.21 m) above land-surface datum.
PERIOD OF RECORD.--September 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.87 ft (43.24 m) below land-surface datum, Dec. 31, 1968; lowest measured, 144.20 ft (43.95 m) below land-surface datum, Nov. 26, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 28	142.67	MAR 8	142.63	MAY 30	142.71	SEPT 5	142.80

KIDDER COUNTY

470638099324301. Local number, 142-070-16DDD.
LOCATION.--Lat 47°06'38", long 099°32'43", Hydrologic Unit 10130103.
Owner: North Dakota State Water Commission.
AQUIFER.--Long Lake.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 84 ft (25.6 m), cased to 70 ft (21.3 m), plastic pipe, No. 18 slot screen set 70 to 73 ft (21.3 to 22.3 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,810 ft (552 m). Measuring point: Top of casing 1.90 ft (0.58 m) above land-surface datum.
PERIOD OF RECORD.--November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.94 ft (6.08 m) below land-surface datum, Dec. 4, 1976; lowest measured, 25.44 ft (7.75 m) below land-surface datum, Aug. 27, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	21.92	FEB 1	22.46	APR 26	21.33	JUL 27	22.55
DEC 1	21.86	FEB 28	22.00	MAY 26	21.27	AUG 28	23.77
DEC 30	21.92	MAR 28	21.72	JUN 29	21.96	SEPT 21	22.23

MC LEAN COUNTY

473752101055301. Local number, 148-082-23BBB.
LOCATION.--Lat 47°37'52", long 101°05'53", Hydrologic Unit 10130101.
Owner: North Dakota State Water Commission.
AQUIFER.--Lake Nettie.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 300 ft (91 m), cased to 198 ft (60 m), plastic pipe, No. 24 slot screen set 198 to 204 ft (60 to 62 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,880 ft (573 m). Measuring point: Top of casing 2.30 ft (0.70 m) above land-surface datum.
PERIOD OF RECORD.--December 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 38.23 ft (11.65 m) below land-surface datum, Aug. 7, 1978; lowest measured, 42.30 ft (12.89 m) below land-surface datum, Dec. 2, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	39.23	DEC 27	39.21	APR 10	39.34	JUL 12	38.24
OCT 26	39.08	JAN 9	39.29	APR 27	39.19	JUL 25	38.33
NOV 15	39.24	JAN 23	38.35	MAY 10	38.93	AUG 7	38.23
NOV 30	39.23	FEB 23	39.38	MAY 23	38.96	AUG 24	38.38
DEC 2	39.30	MAR 6	39.49	JUN 5	38.82	SEPT 13	38.24
DEC 12	39.16	MAR 30	39.50	JUN 27	38.66	SEPT 25	38.32

OLIVER COUNTY

470642101162701. Local number, 142-084-24BBA.
LOCATION.--Lat 47°06'42", long 101°16'27", Hydrologic Unit 10130101.
Owner: North Dakota State Water Commission.
AQUIFER.--Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 1,295 ft (395 m), cased to 966 ft (294 m), steel pipe, open ended.
DATUM.--Altitude of land-surface datum is 2,006 ft (611 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.04 ft (60.06 m) below land-surface datum, Dec. 8, 1972; lowest measured, 208.70 ft (63.61 m) below land-surface datum, Nov. 24, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 5	198.80	FEB 28	198.28	AUG 29	198.63		

PEMBINA COUNTY

485239097501702. Local number, 162-056-01CCC2.
LOCATION.--Lat 48°52'39", long 097°50'17", Hydrologic Unit 09020313.
Owner: North Dakota State Water Commission.
AQUIFER.--Icelandic.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 40 ft (12 m), cased to 37 ft (11.3 m), plastic pipe, No. 12 slot screen set 37 to 40 ft (11.3 to 12.2 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 988 ft (301 m). Measuring point: Top of casing 1.8 ft (0.55 m) above land-surface datum.
PERIOD OF RECORD.--October 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.65 ft (1.42 m) below land-surface datum, May 8, 1970; lowest measured, 8.06 ft (2.46 m) below land-surface datum, Dec. 4, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	7.60	MAR 8	7.72	JUN 7	6.39	SEPT 13	8.05

PIERCE COUNTY

475323100092101. Local number, 151-074-20AAA.
LOCATION.--Lat 47°53'23", long 100°09'21", Hydrologic Unit 09020202.
Owner: North Dakota State Water Commission.
AQUIFER.--New Rockford.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 320 ft (98 m), cased to 256 ft (78 m), plastic pipe, No. 18 slot screen set 256 to 259 ft (78 to 79 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,605 ft (489 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--November 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.08 ft (8.56 m) below land-surface datum, Nov. 29, 1976; lowest measured, 31.73 ft (9.67 m) below land-surface datum, Dec. 10, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	28.64	MAR 1	29.08	MAY 31	29.00	SEPT 6	29.34

RICHLAND COUNTY

462633097163402. Local number, 134-052-06CCD2.
LOCATION.--Lat 46°26'33", long 097°16'34", Hydrologic Unit 09020204.
Owner: North Dakota State Water Commission.
AQUIFER.--Sheyenne Delta.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 40 ft (12 m), cased to 30 ft (9.1 m), plastic pipe, slotted 30 to 40 ft (9.1 to 12.2 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,067 ft (325 m). Measuring point: Top of casing 0.65 ft (0.20 m) above land-surface datum.
REMARKS.--Well pumped, repainted and identification installed on Sept. 17, 1969
PERIOD OF RECORD.--September 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.78 ft (0.24 m) below land-surface datum, May 13, 1972; lowest recorded, 8.73 ft (2.66 m) below land-surface datum, Feb. 8, 1977. May have been lower during period of missing record, Jan. 17 - Feb. 7, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.01	6.63	6.23	6.60	7.45	7.65	3.15	3.48	4.53	4.76	6.87	7.54
10	6.59	6.55	6.28	6.78	7.54	7.71	2.85	2.88	4.55	5.30	7.05	7.68
15	6.52	6.43	6.30	6.93	7.59	7.73	3.09	3.14	5.04	5.70	7.24	6.75
20	6.54	6.26	6.29	7.09	7.62	7.48	3.09	3.64	5.18	6.06	7.35	6.67
25	6.59	6.25	6.27	7.18	7.65	6.64	2.77	3.93	5.28	6.32	7.43	6.80
EOM	6.60	6.21	6.44	7.33	7.65	4.32	3.10	4.26	4.93	6.68	7.45	6.91
MIN	6.51	6.21	6.21	6.49	7.35	4.32	2.75	2.85	4.33	4.61	6.72	6.65

WTR YR 1978 MEAN 6.03 HIGH 2.75 APR 24 LOW 7.74 MAR 12

STARK COUNTY

465755102410701. Local number, 140-095-08AAA.
LOCATION.--Lat 46°57'55", long 102°41'07", Hydrologic Unit 10130204.
Owner: North Dakota State Water Commission.
AQUIFER.--Sentinel Butte.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 160 ft (49 m), cased to 80 ft (24.4 m), plastic pipe, open ended.
DATUM.--Altitude of land-surface datum is 2,419 ft (737 m). Measuring point: Top of casing 1.70 ft (0.52 m) above land-surface datum.
PERIOD OF RECORD.--December 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.61 ft (4.76 m) below land-surface datum, June 19, 1970; lowest measured, 27.23 ft (8.30 m) below land-surface datum, Dec. 10, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	18.04	JAN 18	18.18	APR 25	16.91	JUL 20	16.66
NOV 22	18.14	FEB 20	18.42	MAY 23	16.59	AUG 17	16.49
NOV 28	18.27	MAR 20	18.04	JUN 21	16.93	SEPT 20	17.74
DEC 22	17.99						

STEELE COUNTY

471516097360301. Local number, 144-055-26BBB.
LOCATION.--Lat 47°15'16", long 097°36'03", Hydrologic Unit 09020109.
Owner: North Dakota State Water Commission.
AQUIFER.--Galesburg.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 300 ft (91 m), cased to 53 ft (16.2 m), plastic pipe, slotted 53 to 68 ft (16.2 to 20.7 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,160 ft (354 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--June 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.43 ft (5.31 m) below land-surface datum, June 27, 1970; lowest measured, 21.87 ft (6.67 m) below land-surface datum, Aug. 30, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	21.54	FEB 27	20.90	JUN 9	19.23	SEPT 8	21.79

STUTSMAN COUNTY

463846098274101. Local number, 137-062-26DDD.
LOCATION.--Lat 46°38'46", long 098°27'41", Hydrologic Unit 10160003.
Owner: North Dakota State Water Commission.
AQUIFER.--Spiritwood.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 240 ft (73 m), cased to 157 ft (48 m), plastic pipe, No. 12 slot screen set 157-163 ft (48 to 50 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,455 ft (443 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
PERIOD OF RECORD.--September 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.90 ft (4.85 m) below land-surface datum, Dec. 4, 1975; lowest measured, 20.67 ft (6.30 m) below land-surface datum, May 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	17.62	MAR 9	17.88	JUN 1	17.11	SEPT 7	16.52

TRAILL COUNTY

473228097091501. Local number, 147-051-22BBB.
LOCATION.--Lat 47°32'28", long 097°09'15", Hydrologic Unit 09020301.
Owner: North Dakota State Water Commission.
AQUIFER.--Hillsboro.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 103 ft (31.4 m), cased to 97 ft (29.6 m), plastic pipe, No. 18 slot screen set 97 to 100 ft (29.6 m to 30.5 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 925 ft (282 m). Measuring point: Top of casing 2.40 ft (0.73 m) above land-surface datum.
PERIOD OF RECORD.--August 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.73 ft (+0.22 m) above land-surface datum, July 6, 1970; lowest measured, 7.27 ft (2.22 m) below land-surface datum, Aug. 17, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	2.90	MAR 1	3.47	JUN 9	1.70	SEPT 8	2.36

WALSH COUNTY

481657097473601. Local number, 156-056-36CCC1.
LOCATION.--Lat 48°16'57", long 097°47'36", Hydrologic Unit 09020308.
Owner: North Dakota State Water Commission.
AQUIFER.--Fordville.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 280 ft (85.3 m), cased to 27 ft (8.23 m), plastic pipe, No. 18 slot screen set 27 to 30 ft (8.23 to 9.14 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,145 ft (349 m). Measuring point: Top of casing 1.85 ft (0.56 m) above land-surface datum.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.15 ft (1.57 m) below land-surface datum, Mar. 5, 1971; lowest measured, 6.95 ft (2.12 m) below land-surface datum, June 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	6.01	MAR 13	5.32	JUN 9	5.28	SEPT 6	5.99

WALSH COUNTY

482408097443201. Local number, 157-055-21DBC.

LOCATION.--Lat 48°24'08", long 097°44'32", Hydrologic Unit 09020301.
Owner: North Dakota State Water Commission.

AQUIFER.--Dakota Formation.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 496 ft (151 m), cased to 491 ft (150 m), steel pipe, screen set 491 to 496 ft (150 to 151 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 975 ft (297 m). Measuring point: Top of casing at land-surface datum.

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 90.67 ft (27.64 m) below land-surface datum, Mar. 7, 1978; lowest measured, 92.75 ft (28.27 m) below land-surface datum, Sept. 17, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	91.38	MAR 7	90.67	JUN 9	91.43	SEPT 6	91.43

WALSH COUNTY

482449098095801. Local number, 157-058-18DDD.

LOCATION.--Lat 48°24'49", long 098°09'58", Hydrologic Unit 09020308.
Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), depth 140 ft (42.7 m), cased to 80 ft (24.4 m), plastic pipe, slotted screen set 80 to 100 ft (24.4 to 30.5 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,580 ft (482 m). Measuring point: Top of casing 1.00 ft (0.30 m) above land-surface datum.

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +0.89 ft (+0.27 m) above land-surface datum, Dec. 5, 1972; lowest measured, 9.15 ft (2.79 m) below land-surface datum, Mar. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 13	8.49	JUN 6	2.70	SEPT 6	5.69		

WARD COUNTY

480912101090301. Local number, 154-082-24ABA.

LOCATION.--Lat 48°09'12", long 101°09'03", Hydrologic Unit 09010001.
Owner: North Dakota State Water Commission.

AQUIFER.--Lower Souris.

WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 115 ft (35.1 m), cased to 10 ft (3.0 m), plastic pipe, slotted screen set 10 to 40 ft (3.0 to 12.2 m) below land-surface datum.

DATUM.--Altitude of land-surface datum is 1,850 ft (564 m). Measuring point: Top of casing 1.70 ft (0.52 m) above land-surface datum.

REMARKS.--Measurement frequency has been changed from annual to quarterly as of Jan. 31, 1977.

PERIOD OF RECORD.--January 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.33 ft (1.93 m) below land-surface datum, July 30, 1969; lowest measured, 13.69 ft (4.17 m) below land-surface datum, Mar. 4, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	12.74	JUN 13	11.92	SEPT 8	12.70		

WELLS COUNTY

474419099371201. Local number, 149-070-09DAA1.
LOCATION.--Lat 47°44'19", long 099°37'12", Hydrologic Unit 10160001.
Owner: North Dakota State Water Commission.
AQUIFER.--New Rockford.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 283 ft (86 m), cased to 177 ft (54 m), plastic pipe, slotted 177 to 197 ft (54 to 60 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,610 ft (491 m). Measuring point: Top of casing 1.80 ft (0.55 m) above land-surface datum.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 65.24 ft (19.88 m) below land-surface datum, Sept. 6, 1978; lowest measured, 66.65 ft (20.32 m) below land-surface datum, Mar. 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	64.86	MAR 1	65.50	MAY 31	65.26	SEPT 6	65.24

WILLIAMS COUNTY

483048103373101. Local number, 158-100-17ADA.
LOCATION.--Lat 48°30'48", long 103°37'31", Hydrologic Unit 10110102.
Owner: North Dakota State Water Commission.
AQUIFER.--Little Muddy.
WELL CHARACTERISTICS.--Drilled observation well, diameter 1.25 in (0.03 m), depth 52 ft (15.8 m), cased to 35 ft (10.7 m), plastic pipe, slotted 35 to 43 ft (10.7 to 13.1 m) below land-surface datum.
DATUM.--Altitude of land-surface datum is 1,987 ft (606 m). Measuring point: Top of casing 2.00 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--August 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.67 ft (5.69 m) below land-surface datum, June 6, 1978; lowest measured, 20.32 ft (6.19 m) below land-surface datum, July 18, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	19.46	FEB 28	19.50	JUN 6	18.67	SEPT 6	19.03

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	LOCAL IDENT-I-FIER	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	DATE OF SAMPLE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)
				BENSON COUNTY					
475508098551401	151-064-15CCC	112WRCK	25	78-05-18	1050	320	8.0	4.6	2
		112WRCK	25	78-08-29	1045	260	8.0	8.0	6
475631098444101	151-063-32ABD	112WRCK	23	78-05-18	1130	800	7.1	5.4	75
		112WRCK	23	78-08-29	1800	800	7.1	9.5	70
				BOTTINEAU COUNTY					
485701101060401	159-081-11BBB	112TILL	20	77-11-03	1245	525	7.9	8.5	6
		112TILL	20	78-02-02	1015	510	8.3	5.5	1
		112TILL	20	78-05-24	1615	425	7.8	11.0	1
		112TILL	20	78-08-31	0815	540	8.3	9.5	5
				BOWMAN COUNTY					
460856103380401	131-099-22DCC	125TRVL	76	77-11-09	1545	3650	9.0	8.0	--
460804103310101	131-099-26DDD	125TRVL	76	77-11-08	1800	1390	8.3	4.0	--
460800103321601	131-099-27DDD1	125TRVL	112	77-11-09	1300	1390	8.3	9.5	--
				DICKEY COUNTY					
460420098014703	130-059-02AAA3	112OKES	18	77-10-31	1720	780	7.4	9.0	6
		112OKES	18	78-01-30	1420	620	7.4	8.0	5
		112OKES	18	78-05-17	1845	600	7.0	6.2	3
		112OKES	18	78-08-29	1135	560	7.4	9.5	4
460441098012803	130-059-13CCC3	112OKES	18	77-10-31	1640	570	7.4	9.1	17
		112OKES	18	78-01-31	1315	575	7.4	9.0	6
		112OKES	18	78-05-17	1740	560	7.2	7.3	3
		112OKES	18	78-08-29	1215	560	7.4	8.5	8
460440098041502	130-059-16AAA2	112OKES	18	77-10-31	1510	500	7.4	9.0	6
		112OKES	18	78-01-31	1115	520	7.6	8.0	5
		112OKES	18	78-05-17	1825	560	7.3	5.3	2
		112OKES	18	78-08-29	1315	500	7.4	8.0	5
460403098041503	130-059-16DDD3	112OKES	18	77-10-31	1545	540	7.4	9.0	13
		112OKES	18	78-01-31	1225	560	7.6	7.5	8
		112OKES	18	78-05-17	1805	570	7.2	6.3	7
		112OKES	18	78-08-29	1245	600	7.4	9.0	17
460810098040202	131-059-27BBB2	112OKES	23	77-11-01	1215	1300	7.6	8.0	4
		112OKES	23	78-01-31	0915	1260	7.6	8.0	2
		112OKES	23	78-05-17	1545	1110	7.3	7.0	1
		112OKES	23	78-08-29	0815	--	7.5	8.0	4
460732098032402	131-059-27DCC2	112OKES	18	77-11-01	1020	400	7.4	9.0	40
		112OKES	18	78-01-30	1655	320	7.5	8.0	12
		112OKES	18	78-05-17	1635	200	7.4	4.3	4
		112OKES	18	78-08-29	1000	260	7.5	7.5	11
460739098041102	131-059-28DDA2	112OKES	18	77-11-01	1130	580	7.6	9.0	4
		112OKES	18	78-01-31	1020	600	7.7	8.0	2
		112OKES	18	78-05-17	1615	600	7.5	6.0	1
		112OKES	18	78-08-29	0923	600	7.8	9.0	3
460706098041102	131-059-33ADD2	112OKES	23	77-10-04	1300	670	7.2	9.0	7
		112OKES	23	77-11-01	0845	660	7.3	8.5	5
		112OKES	23	77-12-05	1630	675	7.6	7.5	2
		112OKES	23	78-01-10	1400	630	7.3	8.5	5
		112OKES	23	78-01-30	1515	660	7.6	8.5	2
		112OKES	23	78-03-07	0905	620	7.3	8.5	2
		112OKES	23	78-05-17	1905	600	7.2	7.5	1
		112OKES	23	78-08-29	1105	650	7.5	8.0	4
460719098040202	131-059-34BBC2	112OKES	19	77-11-01	0935	575	7.6	9.0	7
		112OKES	19	78-01-30	1620	570	7.8	8.5	7
		112OKES	19	78-05-17	1655	580	7.4	7.3	5
		112OKES	19	78-08-29	1030	625	7.6	8.5	6
				EDDY COUNTY					
474347098524201	149-064-17ABB	112NRKF	26	78-08-30	0935	540	7.6	7.0	3
474346098561401	149-065-14AAB	112NRKF	23	78-05-17	1240	650	7.3	5.3	1
		112NRKF	23	78-08-30	1225	700	7.6	7.5	5
475004098375601	150-062-06DDA	112WRCK	--	78-05-18	1030	345	7.5	5.0	1
		112WRCK	--	78-08-29	1705	360	7.5	11.0	3
474747098354301	150-062-21ACD	112WRCK	--	78-08-29	1406	575	--	18.0	43
474851098425501	150-063-15BBC	112WRCK	--	78-06-15	1110	460	7.8	17.0	4
		112WRCK	--	78-08-23	1200	455	7.7	13.5	6

Geologic unit (aquifer):

112WRCK - Warwick aquifer, Pleistocene age.
112TILL - Till deposits, Pleistocene age.
125TRVL - Tongue River-Ludlow Members of Fort Union Formation, Paleocene age.
112OKES - Oakes aquifer, Pleistocene age.
112NRKF - New Rockford aquifer, Pleistocene age.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)
					BENSON COUNTY						
475329098351401	78-05-18	190	41	49	16	3.4	4	.1	2.0	180	0
	78-08-29	140	24	36	12	4.4	6	.2	1.7	140	0
475131098444101	78-05-18	440	0	51	77	40	16	.8	17	620	0
	78-08-29	390	0	50	65	36	16	.8	20	590	0
					BOTTINEAU COUNTY						
483701101060401	77-11-03	280	27	63	30	14	10	.4	1.8	310	0
	78-02-02	270	28	52	33	15	11	.4	1.8	290	0
	78-05-24	280	29	59	31	13	9	.3	1.7	300	0
	78-08-31	280	38	66	29	15	10	.4	1.9	300	0
					BOWMAN COUNTY						
460856103024401	77-11-09	1700	1200	300	220	400	34	4.3	14	580	0
460804103010101	77-11-08	59	0	20	2.0	320	92	18	2.9	530	0
460804103021601	77-11-09	27	0	6.6	2.3	370	97	32	2.2	780	0
					DICKEY COUNTY						
460630098014703	77-10-31	390	25	100	33	15	8	.3	18	440	0
	78-01-30	320	44	83	28	13	8	.3	10	340	0
	78-05-17	330	26	84	29	14	8	.3	10	370	0
	78-08-29	280	28	75	23	15	10	.4	9.8	310	0
460401098012503	77-10-31	290	41	77	23	8.0	6	.2	3.1	300	0
	78-01-31	320	40	85	26	7.9	5	.2	2.9	340	0
	78-05-17	330	38	89	27	10	6	.2	3.2	360	0
	78-08-29	300	26	81	23	11	7	.3	3.0	330	0
460448098041502	77-10-31	230	0	61	18	18	14	.5	4.8	330	0
	78-01-31	260	0	68	21	18	13	.5	3.7	320	0
	78-05-17	270	0	70	24	20	14	.5	4.0	370	0
	78-08-29	260	0	70	20	20	14	.5	3.7	320	0
460403098041503	77-10-31	260	16	62	26	10	7	.3	7.1	300	0
	78-01-31	300	42	69	30	11	7	.3	6.8	310	0
	78-05-17	330	16	77	33	11	7	.3	6.8	380	0
	78-08-29	330	23	78	32	13	8	.3	7.5	370	0
460818098040202	77-11-01	710	290	180	64	23	7	.4	5.8	520	0
	78-01-31	670	250	170	60	20	6	.3	5.4	520	0
	78-05-17	660	270	170	57	22	7	.4	5.5	470	0
	78-08-29	730	360	200	55	24	7	.4	5.1	450	0
460732098032402	77-11-01	190	8	54	13	2.9	3	.1	7.1	220	0
	78-01-30	160	8	46	12	1.8	2	.1	6.2	190	0
	78-05-17	97	0	29	5.9	.8	2	.0	5.7	120	0
	78-08-29	130	18	38	7.3	1.7	3	.1	7.0	130	0
460739098041102	77-11-01	270	9	64	27	20	14	.5	4.4	320	0
	78-01-31	300	35	68	31	19	12	.5	3.9	320	0
	78-05-17	340	7	88	28	21	12	.5	5.1	400	0
	78-08-29	320	54	74	32	2.0	1	.0	4.0	320	0
46070609[illegible]041102	77-10-04	320	3	88	25	23	13	.6	5.1	390	0
	77-11-01	310	24	85	24	21	13	.5	5.0	350	0
	77-12-05	340	20	90	28	22	12	.5	5.3	390	--
	78-01-10	340	32	90	29	21	12	.5	5.1	380	0
	78-01-30	340	24	93	27	21	12	.5	4.9	390	0
	78-03-07	340	23	91	28	23	13	.5	5.0	390	0
	78-05-17	330	59	76	34	19	11	.5	3.8	330	0
	78-08-29	320	11	88	25	28	16	.7	5.8	380	0
460719098040202	77-11-01	270	0	53	33	23	15	.6	5.6	340	0
	78-01-30	290	16	52	38	21	14	.5	5.3	330	0
	78-05-17	310	13	56	41	24	14	.6	5.7	360	0
	78-08-29	290	5	56	37	25	15	.6	5.4	350	0
					EDDY COUNTY						
474347098524201	78-08-30	280	78	77	22	7.8	6	.2	2.5	250	0
474346098561401	78-05-17	320	60	88	25	41	21	1.0	3.8	320	0
	78-08-30	310	52	83	24	37	21	.9	3.7	310	0
475004098375601	78-05-18	200	0	58	14	2.4	3	.1	.7	250	0
	78-08-29	190	13	56	13	4.6	5	.1	.8	220	0
474747098354301	78-08-29	330	11	93	24	6.9	4	.2	2.6	390	--
474851098425501	78-06-15	220	13	61	16	11	10	.3	2.0	250	0
	78-08-23	220	24	62	16	10	9	.3	3.1	240	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	ALKA- LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
					BENSON COUNTY						
475329098351401	78-05-18	150	2.9	35	1.5	.2	--	21	207	--	218
	78-08-29	110	2.2	28	1.6	.2	--	22	172	--	171
475131098444101	78-05-18	510	79	7.9	9.0	.5	--	32	545	--	545
	78-08-29	480	75	7.0	7.7	.5	--	36	536	--	519
					BOTTINEAU COUNTY						
483701101060401	77-11-03	250	6.2	43	1.0	.3	--	16	307	--	324
	78-02-02	240	2.3	49	1.3	.3	--	15	308	--	312
	78-05-24	250	7.6	51	1.0	.4	--	14	311	--	325
	78-08-31	250	2.4	58	1.1	.3	--	17	344	--	340
					BOWMAN COUNTY						
460856103024401	77-11-09	480	.9	1900	30	.6	.2	7.1	3510	3700	3160
460804103010101	77-11-08	430	4.3	300	5.5	2.1	.1	8.5	914	940	924
460804103021601	77-11-09	640	6.3	160	12	4.1	--	3.5	1180	1200	950
					DICKEY COUNTY						
460630098014703	77-10-31	360	28	80	4.3	.2	--	30	499	--	494
	78-01-30	280	22	61	3.5	.2	--	29	387	--	397
	78-05-17	300	59	69	3.7	.1	--	24	418	--	419
	78-08-29	250	20	57	3.1	.2	--	28	362	--	367
460401098012503	77-10-31	250	19	44	2.1	.5	--	30	363	--	340
	78-01-31	280	22	40	2.0	.5	--	29	358	--	365
	78-05-17	300	36	50	2.6	.5	--	28	375	--	392
	78-08-29	270	21	38	2.0	.5	--	29	359	--	354
460448098041502	77-10-31	270	21	12	3.9	.2	--	30	310	--	312
	78-01-31	260	13	16	5.0	.2	--	29	314	--	320
	78-05-17	300	30	23	5.0	.2	--	26	374	--	356
	78-08-29	260	20	19	5.7	.2	--	28	327	--	326
460403098041503	77-10-31	250	19	48	8.3	.1	--	27	348	--	340
	78-01-31	250	12	45	9.1	.2	--	26	351	--	353
	78-05-17	310	38	33	6.9	.1	--	24	381	--	383
	78-08-29	300	24	37	3.4	.1	--	25	376	--	382
460810098040202	77-11-01	430	21	190	99	.4	--	28	867	--	860
	78-01-31	430	21	140	98	.3	--	27	820	--	781
	78-05-17	390	38	170	85	.3	--	26	891	--	812
	78-08-29	370	23	210	84	.4	--	27	841	--	869
460732098032402	77-11-01	180	14	30	1.5	.1	--	26	240	--	252
	78-01-30	160	9.6	12	1.1	.1	--	25	199	--	205
	78-05-17	98	7.6	5.6	4.4	.1	--	19	138	--	133
	78-08-29	110	6.6	17	4.1	.1	--	21	170	--	166
460739098041102	77-11-01	260	13	36	3.6	.5	--	30	374	--	383
	78-01-31	260	10	42	4.0	.4	--	28	362	--	377
	78-05-17	330	20	55	3.9	.3	--	29	430	--	428
	78-08-29	260	8.1	40	5.9	.4	--	30	389	--	375
460706098041102	77-10-04	320	39	55	4.9	.4	--	29	419	--	424
	77-11-01	290	28	52	4.9	.3	--	29	411	--	395
	77-12-05	320	16	54	7.0	.3	--	29	411	--	429
	78-01-10	310	30	54	5.3	.4	--	30	417	--	424
	78-01-30	320	16	54	5.4	.3	--	29	412	--	428
	78-03-07	320	31	63	5.0	.4	--	.1	423	--	409
	78-05-17	270	33	58	7.4	.4	--	27	395	--	433
	78-08-29	310	19	53	4.0	.3	--	28	399	--	419
460719098040202	77-11-01	280	14	51	4.8	.3	--	26	349	--	367
	78-01-30	270	8.4	48	4.8	.3	--	26	351	--	360
	78-05-17	300	23	49	3.8	.3	--	24	397	--	398
	78-08-29	290	14	42	3.6	.3	--	25	394	--	393
					EDDY COUNTY						
474347098524201	78-08-30	210	10	45	5.3	.1	--	22	372	--	363
474346098561401	78-05-17	260	26	110	21	.2	--	27	455	--	476
	78-08-30	250	12	110	18	.2	--	28	466	--	459
475004098375601	78-05-18	210	13	7.0	.8	.1	--	23	232	--	229
	78-08-29	180	11	12	.9	.2	--	23	238	--	219
474747098354301	78-08-29	320	--	11	2.6	.2	--	40	387	--	374
474851098425501	78-06-15	210	6.3	30	2.8	.1	--	27	270	--	274
	78-08-23	200	7.7	29	3.9	.1	--	27	290	--	270

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
					BENSON COUNTY						
475329098351401	78-05-18	.28	.05	--	.02	--	--	--	20	--	--
	78-08-29	.23	.06	--	.02	--	--	--	30	--	--
475131098444101	78-05-18	.74	.01	--	.07	--	--	--	160	--	--
	78-08-29	.73	.04	--	.02	--	--	--	180	--	--
					BOTTINEAU COUNTY						
483701101060401	77-11-03	.42	.15	--	.02	--	--	--	50	--	--
	78-02-02	.42	.15	--	.01	--	--	--	40	--	--
	78-05-24	.42	1.2	--	.02	--	--	--	40	--	--
	78-08-31	.47	.59	--	.04	--	--	--	50	--	--
					BOWMAN COUNTY						
460856103024401	77-11-09	4.77	.01	.44	.03	20	3	400	520	0	[illegible]
460804103010101	77-11-08	1.24	.01	.56	.15	30	3	500	970	0	[illegible]
460804103021601	77-11-09	1.60	.23	4.4	.65	160	2	500	2000	0	[illegible]
					DICKEY COUNTY						
460630098014703	77-10-31	.68	.01	--	.03	--	--	--	50	--	--
	78-01-30	.53	.01	--	.01	--	--	--	40	--	--
	78-05-17	.57	.02	--	.00	--	--	--	40	--	--
	78-08-29	.49	.01	--	.00	--	--	--	120	--	--
460401098012503	77-10-31	.49	.01	--	.03	--	--	--	40	--	--
	78-01-31	.49	.01	--	.01	--	--	--	30	--	--
	78-05-17	.51	.15	--	.00	--	--	--	30	--	--
	78-08-29	.49	.01	--	.02	--	--	--	40	--	--
460448098041502	77-10-31	.42	.00	--	.05	--	--	--	50	--	--
	78-01-31	.43	.01	--	.04	--	--	--	40	--	--
	78-05-17	.51	.00	--	.03	--	--	--	40	--	--
	78-08-29	.44	.03	--	.05	--	--	--	50	--	--
460403098041503	77-10-31	.47	.00	--	.26	--	--	--	40	--	--
	78-01-31	.48	.01	--	.06	--	--	--	40	--	--
	78-05-17	.52	.00	--	.03	--	--	--	40	--	--
	78-08-29	.51	.02	--	.09	--	--	--	40	--	--
460818098040202	77-11-01	1.18	2.9	--	.10	--	--	--	130	--	--
	78-01-31	1.12	.71	--	.11	--	--	--	120	--	--
	78-05-17	1.21	9.8	--	.08	--	--	--	120	--	--
	78-08-29	1.14	9.1	--	.10	--	--	--	120	--	--
460732098032402	77-11-01	.33	.02	--	.03	--	--	--	20	--	--
	78-01-30	.27	.01	--	.03	--	--	--	20	--	--
	78-05-17	.19	.01	--	.02	--	--	--	20	--	--
	78-08-29	.23	.01	--	.08	--	--	--	110	--	--
460739098041102	77-11-01	.51	8.8	--	.04	--	--	--	80	--	--
	78-01-31	.49	4.9	--	.03	--	--	--	70	--	--
	78-05-17	.58	.00	--	.00	--	--	--	100	--	--
	78-08-29	.53	6.3	--	.02	--	--	--	140	--	--
460706098041102	77-10-04	.57	.03	--	.02	--	--	--	100	--	--
	77-11-01	.56	.02	--	.03	--	--	--	100	--	--
	77-12-05	.56	.00	--	.02	--	--	--	100	--	--
	78-01-10	.57	.06	--	.04	--	--	--	100	--	--
	78-01-30	.56	.04	--	.02	--	--	-	100	--	--
	78-03-07	.58	.06	--	.02	--	--	--	100	--	--
	78-05-17	.54	10	--	.01	--	--	--	70	--	--
	78-08-29	.54	.04	--	.00	--	--	--	150	--	--
460719098040202	77-11-01	.47	.41	--	.04	--	--	--	120	--	--
	78-01-30	.48	.21	--	.04	--	--	--	120	--	--
	78-05-17	.54	3.6	--	.01	--	--	--	120	--	--
	78-08-29	.54	5.8	--	.02	--	--	--	160	--	--
					EDDY COUNTY						
474347098524201	78-08-30	.51	13	--	.00	--	--	--	120	--	--
474346098561401	78-05-17	.62	.01	--	.03	--	--	--	70	--	--
	78-08-30	.63	.03	--	.01	--	--	--	140	--	--
475004098375601	78-05-18	.32	.01	--	.00	--	--	--	20	--	--
	78-08-29	.32	.01	--	.01	--	--	--	20	--	--
474747098354301	78-08-29	.53	.01	--	.09	--	--	--	60	--	--
474851098425501	78-06-15	.37	.03	--	.00	--	--	--	40	--	--
	78-08-23	.39	.04	--	.06	--	--	--	40	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
BENSON COUNTY											
475329098351401	78-05-18	--	1200	--	--	80	--	--	--	--	--
	78-08-29	--	30	--	--	80	--	--	--	--	--
475131098444101	78-05-18	--	4600	--	--	250	--	--	--	--	--
	78-08-29	--	5000	--	--	340	--	--	--	--	--
BOTTINEAU COUNTY											
483701101060401	77-11-03	--	130	--	--	900	--	--	--	--	--
	78-02-02	--	70	--	--	770	--	--	--	--	--
	78-05-24	--	230	--	--	840	--	--	--	--	--
	78-08-31	--	290	--	--	820	--	--	--	--	--
BOWMAN COUNTY											
460856103024401	77-11-09	1	40	0	110	550	.0	2	0	4200	20
460804103010101	77-11-08	14	50	1	30	20	.2	0	0	160	60
460804103021601	77-11-09	8	570	8	20	110	.0	2	0	240	20
DICKEY COUNTY											
460630098014703	77-10-31	--	1700	--	--	1200	--	--	--	--	--
	78-01-30	--	630	--	--	580	--	--	--	--	--
	78-05-17	--	1900	--	--	900	--	--	--	--	--
	78-08-29	--	2100	--	--	660	--	--	--	--	--
460401098012503	77-10-31	--	3700	--	--	1000	--	--	--	--	--
	78-01-31	--	2900	--	--	860	--	--	--	--	--
	78-05-17	--	2900	--	--	1000	--	--	--	--	--
	78-08-29	--	2400	--	--	990	--	--	--	--	--
460448098041502	77-10-31	--	180	--	--	800	--	--	--	--	--
	78-01-31	--	220	--	--	700	--	--	--	--	--
	78-05-17	--	70	--	--	920	--	--	--	--	--
	78-08-29	--	800	--	--	950	--	--	--	--	--
460403098041503	77-10-31	--	1500	--	--	1800	--	--	--	--	--
	78-01-31	--	1200	--	--	1400	--	--	--	--	--
	78-05-17	--	1900	--	--	1800	--	--	--	--	--
	78-08-29	--	1100	--	--	2100	--	--	--	--	--
460818098040202	77-11-01	--	20	--	--	610	--	--	--	--	--
	78-01-31	--	20	--	--	520	--	--	--	--	--
	78-05-17	--	80	--	--	580	--	--	--	--	--
	78-08-29	--	30	--	--	1000	--	--	--	--	--
460732098032402	77-11-01	--	5200	--	--	3100	--	--	--	--	--
	78-01-30	--	4300	--	--	2300	--	--	--	--	--
	78-05-17	--	1300	--	--	1900	--	--	--	--	--
	78-08-29	--	3000	--	--	2700	--	--	--	--	--
460739098041102	77-11-01	--	10	--	--	970	--	--	--	--	--
	78-01-31	--	10	--	--	590	--	--	--	--	--
	78-05-17	--	340	--	--	410	--	--	--	--	--
	78-08-29	--	20	--	--	990	--	--	--	--	--
460706098041102	77-10-04	--	340	--	--	450	--	--	--	--	--
	77-11-01	--	490	--	--	540	--	--	--	--	--
	77-12-05	--	530	--	--	540	--	--	--	--	--
	78-01-10	--	610	--	--	480	--	--	--	--	--
	78-01-30	--	260	--	--	390	--	--	--	--	--
	78-03-07	--	170	--	--	370	--	--	--	--	--
	78-05-17	--	20	--	--	760	--	--	--	--	--
	78-08-29	--	20	--	--	410	--	--	--	--	--
460719098040202	77-11-01	--	130	--	--	400	--	--	--	--	--
	78-01-30	--	50	--	--	220	--	--	--	--	--
	78-05-17	--	30	--	--	250	--	--	--	--	--
	78-08-29	--	20	--	--	440	--	--	--	--	--
EDDY COUNTY											
474347098524201	78-08-30	--	30	--	--	160	--	--	--	--	--
474346098561401	78-05-17	--	1200	--	--	660	--	--	--	--	--
	78-08-30	--	770	--	--	750	--	--	--	--	--
475004098375601	78-05-18	--	90	--	--	10	--	--	--	--	--
	78-08-29	--	90	--	--	30	--	--	--	--	--
474747098354301	78-08-29	--	90	--	--	630	--	--	--	--	--
474851098425501	78-06-15	--	110	--	--	240	--	--	--	--	--
	78-08-23	--	80	--	--	160	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
BENSON COUNTY						
475329098351401	78-05-18	--	--	--	--	--
	78-08-29	--	--	--	--	--
475131098444101	78-05-18	--	--	--	--	--
	78-08-29	--	--	--	--	--
BOTTINEAU COUNTY						
483701101060401	77-11-03	--	--	--	--	--
	78-02-02	--	--	--	--	--
	78-05-24	--	--	--	--	--
	78-08-31	--	--	--	--	--
BOWMAN COUNTY						
460856103024401	77-11-09	51	16	14	.57	4.4
460804103010101	77-11-08	<10	<3.0	<2.7	.13	9.3
460804103021601	77-11-09	380	47	41	.39	165
DICKEY COUNTY						
460630098014703	77-10-31	--	--	--	--	--
	78-01-30	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460401098012503	77-10-31	--	--	--	--	--
	78-01-31	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460448098041502	77-10-31	--	--	--	--	--
	78-01-31	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460403098041503	77-10-31	--	--	--	--	--
	78-01-31	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460818098[illegible]40202	77-11-01	--	--	--	--	--
	78-01-31	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460732098032402	77-11-01	--	--	--	--	--
	78-01-30	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460739098041102	77-11-01	--	--	--	--	--
	78-01-31	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460706098041102	77-10-04	--	--	--	--	--
	77-11-01	--	--	--	--	--
	77-12-05	--	--	--	--	--
	78-01-10	--	--	--	--	--
	78-01-30	--	--	--	--	--
	78-03-07	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
460719098040202	77-11-01	--	--	--	--	--
	78-01-30	--	--	--	--	--
	78-05-17	--	--	--	--	--
	78-08-29	--	--	--	--	--
EDDY COUNTY						
474347098524201	78-08-30	--	--	--	--	--
474346098561401	78-05-17	--	--	--	--	--
	78-08-30	--	--	--	--	--
475004098375601	78-05-18	--	--	--	--	--
	78-08-29	--	--	--	--	--
474747098354301	78-08-29	--	--	--	--	--
474851098425501	78-06-15	--	--	--	--	--
	78-08-23	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	LOCAL IDENT-I-FIER	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	DATE OF SAMPLE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	COLOR (PLAT-INUM-COBALT UNITS) (00080)
		MC HENRY COUNTY							
482028100475601	156-079-14BBB	112TILL	12	77-11-02	1315	710	7.4	9.0	7
		112TILL	12	78-02-01	1320	730	7.5	5.5	2
		112TILL	12	78-05-24	1055	520	7.5	8.0	5
		112TILL	12	78-08-30	1445	800	7.6	11.5	5
48[illegible]028100503201	156-079-16BBB	112TILL	19	77-11-02	1410	700	7.6	9.0	8
		112TILL	19	78-05-24	1130	700	7.6	9.5	7
		112TILL	19	78-08-30	1420	730	7.6	11.0	5
482405100474601	157-078-19CCC	112TILL	20	77-11-02	1510	970	7.6	9.5	5
		112TILL	20	78-05-24	1220	900	7.6	11.5	4
		112TILL	20	78-08-30	1525	960	7.6	10.5	5
482357100502302	157-079-26BBB2	112TILL	12	77-10-07	1550	840	7.6	10.5	5
		112TILL	12	77-11-02	1430	820	7.5	10.0	4
		112TILL	12	77-11-30	1715	825	7.5	8.0	2
		112TILL	12	78-01-13	0955	800	7.8	5.5	2
		112TILL	12	78-02-02	1405	810	7.5	5.5	1
		112TILL	12	78-03-08	1250	810	7.7	6.0	1
		112TILL	12	78-05-24	1200	675	7.7	8.0	1
		112TILL	12	78-08-30	1605	800	7.7	11.5	3
483240100503201	158-079-03AAA	112TILL	12	77-11-03	1030	7500	7.2	8.5	6
		112TILL	12	78-02-02	1315	7500	7.5	6.0	5
		112TILL	12	78-05-24	1350	10200	7.5	7.0	9
		112TILL	12	78-08-31	1100	9330	7.5	9.5	7
483003100503201	158-079-22AAA	112TILL	134	77-11-02	1615	560	7.8	9.0	6
		112TILL	134	78-02-01	1520	530	8.2	6.5	1
		112TILL	134	78-05-24	1300	470	8.3	11.0	1
		112TILL	134	78-08-30	1640	550	7.9	8.5	2
483003100480401	158-079-24AAB	112TILL	16	77-11-02	1705	540	7.9	8.5	6
		112TILL	16	78-02-01	1615	560	7.5	6.5	5
		112TILL	16	78-05-24	1320	500	7.8	9.0	3
		112TILL	16	78-08-30	1725	550	7.6	8.0	5
482825101100202	158-080-29DDD2	112TILL	12	77-11-03	0905	730	7.5	8.5	13
		112TILL	12	78-02-02	1140	730	7.7	5.0	6
		112TILL	12	78-05-24	1540	850	7.1	7.0	9
		112TILL	12	78-08-31	0935	675	8.0	9.5	8
483418100475501	159-079-25AAD	112TILL	12	77-11-03	1125	2100	7.6	9.5	5
		112TILL	12	78-02-01	1715	2900	7.8	6.5	2
		112TILL	12	78-05-24	1415	1700	7.4	6.5	1
		112TILL	12	78-08-31	1130	1800	7.7	12.5	4
483247100593201	159-080-34CCC	112TILL	12	78-05-24	1450	2200	7.2	7.5	1
		112TILL	12	78-08-31	0905	2400	7.5	9.0	5

Geologic unit (aquifer):

112TILL - Till deposits, Pleistocene age.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)
					MC HENRY COUNTY						
482028100475601	77-11-02	330	11	83	30	31	17	.7	3.9	390	0
	78-02-01	350	18	81	37	35	18	.8	3.6	410	0
	78-05-24	310	19	45	49	16	10	.4	5.8	360	0
	78-08-30	360	0	82	37	45	21	1.0	4.7	450	0
482028100503201	77-11-02	340	4	82	33	25	14	.6	4.9	410	0
	78-05-24	400	26	89	42	37	17	.8	4.8	450	0
	78-08-30	350	2	86	34	31	16	.7	4.8	430	0
482405100474601	77-11-02	510	83	120	51	28	11	.5	4.4	520	0
	78-05-24	530	140	120	56	33	12	.6	4.3	480	0
	78-08-30	520	110	130	48	30	11	.6	4.2	500	0
482357100502302	77-10-07	470	190	120	41	13	6	.3	3.8	340	0
	77-11-02	410	150	100	39	13	6	.3	3.8	320	0
	77-11-30	460	190	120	40	13	6	.3	3.7	340	0
	78-01-13	430	180	110	38	12	6	.3	3.3	310	0
	78-02-02	460	190	120	40	13	6	.3	3.4	330	0
	78-03-08	440	160	110	39	13	6	.3	3.5	330	0
	78-05-24	390	160	92	39	9.7	5	.2	2.5	280	0
	78-08-30	430	200	110	37	11	5	.2	3.1	280	0
483240100503201	77-11-03	5800	5300	500	1100	--	--	--	13	590	0
	78-02-02	5200	4800	480	970	470	16	2.8	12	540	0
	78-05-24	6800	6200	430	1400	930	23	4.9	11	820	0
	78-08-31	5400	4800	170	1200	680	22	4.0	16	730	0
483003100503201	77-11-02	310	10	71	31	12	8	.3	3.3	360	0
	78-02-01	310	47	68	34	12	8	.3	3.3	320	0
	78-05-24	260	1	48	35	13	10	.3	3.4	320	0
	78-08-30	270	1	61	29	14	10	.4	3.2	330	0
483003100480401	77-11-02	300	13	84	22	7.2	5	.2	2.6	350	0
	78-02-01	310	25	87	23	6.8	5	.2	2.1	350	0
	78-05-24	290	7	80	21	7.0	5	.2	2.3	340	0
	78-08-30	290	16	85	20	7.7	5		2.1	340	0
482825101100202	77-11-03	340	53	77	36	28	15			350	0
	78-02-02	370	83	84	39	25	12			350	0
	78-05-24	460	110	100	50	37	15	.8	12	420	0
	78-08-31	320	62	74	32	28	16	.7	11	310	0
483418100475501	77-11-03	1100	430	130	180	150	23	2.0	7.1	770	0
	78-02-01	1100	570	170	170	150	22	1.9	7.3	680	0
	78-05-24	960	360	120	160	140	24	2.0	6.3	730	0
	78-08-31	930	330	110	160	130	23	1.9	6.5	730	0
483247100593201	78-05-24	1800	1500	340	230	64	7	.7	6.3	370	0
	78-08-31	1700	1600	370	180	39	5	.4	9.5	110	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
MC HENRY COUNTY											
482028100475601	77-11-02	320	25	83	2.3	.2	--	24	439	--	450
	78-02-01	340	21	76	2.0	.2	--	21	453	--	458
	78-05-24	300	18	40	1.4	.2	--	11	321	--	357
	78-08-30	370	18	90	1.9	.1	--	22	469	--	505
482028100503201	77-11-02	340	16	60	5.0	.2	--	23	435	--	437
	78-05-24	370	18	81	5.9	.2	--	20	461	--	504
	78-08-30	350	17	67	5.0	.2	--	22	460	--	464
482405100474601	77-11-02	430	21	140	9.4	.2	--	18	654	--	630
	78-05-24	390	19	180	9.3	.2	--	13	657	--	654
	78-08-30	410	20	170	9.7	.2	--	17	686	--	658
482357100502302	77-10-07	280	14	160	2.4	.3	--	21	559	--	574
	77-11-02	260	16	150	2.5	.3	--	21	558	--	532
	77-11-30	280	17	150	2.6	.4	--	20	572	--	566
	78-01-13	250	7.9	170	2.5	.3	--	21	557	--	553
	78-02-02	270	17	150	2.4	.3	--	18	548	--	548
	78-03-08	270	11	130	2.9	.3	--	14	535	--	519
	78-05-24	230	8.9	130	2.1	.3	--	14	451	--	565
	78-08-30	230	8.9	140	2.8	.3	--	19	506	--	532
483240100503201	77-11-03	480	60	5400	17	.2	--	26	8590	--	--
	78-02-02	440	27	5400	39	.2	--	24	8450	--	7700
	78-05-24	670	41	7800	60	.3	--	18	12000	--	11200
	78-08-31	600	37	7100	6.5	.2	--	24	11200	--	9670
483003100503201	77-11-02	300	9.1	35	2.4	.2	--	24	333	--	357
	78-02-01	260	3.2	32	3.5	.2	--	20	317	--	331
	78-05-24	260	2.6	34	3.1	.2	--	10	293	--	305
	78-08-30	270	6.6	35	3.7	.1	--	18	337	--	328
483003100480401	77-11-02	290	7.0	25	1.8	.2	--	22	324	--	338
	78-02-01	290	18	34	1.5	.2	--	25	346	--	354
	78-05-24	280	8.6	28	1.5	.2	--	18	328	--	326
	78-08-30	280	14	29	1.4	.2	--	23	338	--	338
482825101100202	77-11-03	290	18	130	3.7	.2	--	25	483	--	486
	78-02-02	290	11	120	3.7	.2	--	23	476	--	479
	78-05-24	340	53	200	5.3	.2	--	20	623	--	634
	78-08-31	250	5.0	120	3.8	.2	--	23	496	--	446
483410100475501	77-11-03	630	31	690	14	1.0	--	25	1590	--	1580
	78-02-01	560	17	770	28	.9	--	23	1740	--	1660
	78-05-24	600	46	590	11	.9	--	19	1370	--	1410
	78-08-31	600	23	530	11	1.0	--	23	1400	--	1330
483247100593201	78-05-24	300	37	1500	5.6	.2	--	17	2480	--	2350
	78-08-31	90	5.6	1600	52	.2	--	26	2270	--	2330

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)
MC HENRY COUNTY											
482028100475601	77-11-02	.60	.01	--	.01	--	--	--	50	--	--
	78-02-01	.62	.06	--	.01	--	--	--	40	--	--
	78-05-24	.44	2.4	--	.01	--	--	--	50	--	--
	78-08-30	.64	.04	--	.00	--	--	--	40	--	--
482028100503201	77-11-02	.59	.00	--	.02	--	--	--	80	--	--
	78-05-24	.63	.01	--	.01	--	--	--	60	--	--
	78-08-30	.63	.06	--	.00	--	--	--	140	--	--
482405100474601	77-11-02	.89	.13	--	.01	--	--	--	70	--	--
	78-05-24	.89	.14	--	.01	--	--	--	70	--	--
	78-08-30	.93	.00	--	.00	--	--	--	130	--	--
482357100502302	77-10-07	.76	10	--	.00	--	--	--	50	--	--
	77-11-02	.76	10	--	.00	--	--	--	50	--	--
	77-11-30	.78	11	--	.00	--	--	--	60	--	--
	78-01-13	.76	9.7	--	.02	--	--	--	50	--	--
	78-02-02	.75	8.7	--	.01	--	--	--	40	--	--
	78-03-08	.73	9.8	--	.00	--	--	--	40	--	--
	78-05-24	.61	31	--	.01	--	--	--	30	--	--
	78-08-30	.69	16	--	.00	--	--	--	120	--	--
483240100503201	77-11-03	--	8.7	--	.02	--	--	--	190	--	--
	78-02-02	11.5	9.1	--	.02	--	--	--	170	--	--
	78-05-24	16.3	2.4	--	.02	--	--	--	200	--	--
	78-08-31	15.2	26	--	.02	--	--	--	170	--	--
483003100503201	77-11-02	.45	.01	--	.02	--	--	--	40	--	--
	78-02-01	.43	.01	--	.03	--	--	--	30	--	--
	78-05-24	.40	.01	--	.00	--	--	--	30	--	--
	78-08-30	.46	.10	--	.02	--	--	--	30	--	--
483003100480401	77-11-02	.44	.04	--	.01	--	--	--	30	--	--
	78-02-01	.47	.00	--	.04	--	--	--	30	--	--
	78-05-24	.45	.01	--	.00	--	--	--	30	--	--
	78-08-30	.46	.01	--	.01	--	--	--	120	--	--
482825101100202	77-11-03	.66	.03	--	.04	--	--	--	50	--	--
	78-02-02	.65	.01	--	.06	--	--	--	40	--	--
	78-05-24	.85	.02	--	.01	--	--	--	50	--	--
	78-08-31	.67	.06	--	.07	--	--	--	40	--	--
483418100475501	77-11-03	2.16	.09	--	.00	--	--	--	180	--	--
	78-02-01	2.37	.68	--	.22	--	--	--	140	--	--
	78-05-24	1.86	.08	--	.01	--	--	--	130	--	--
	78-08-31	1.90	.10	--	.01	--	--	--	170	--	--
483247100593201	78-05-24	3.37	.17	--	.01	--	--	--	70	--	--
	78-08-31	3.09	.33	--	.02	--	--	--	110	--	--

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MC HENRY COUNTY											
*											
402026100475601	77-11-02	--	320	--	--	220	--	--	--	--	--
	78-02-01	--	20	--	--	0	--	--	--	--	--
	78-05-24	--	10	--	--	10	--	--	--	--	--
	78-08-30	--	20	--	--	30	--	--	--	--	--
402028100503201	77-11-02	--	780	--	--	460	--	--	--	--	--
	78-05-24	--	1400	--	--	700	--	--	--	--	--
	78-08-30	--	700	--	--	600	--	--	--	--	--
402405100474601	77-11-02	--	410	--	--	1100	--	--	--	--	--
	78-05-24	--	350	--	--	860	--	--	--	--	--
	78-08-30	--	860	--	--	920	--	--	--	--	--
402357100502302	77-10-07	--	30	--	--	10	--	--	--	--	--
	77-11-02	--	30	--	--	20	--	--	--	--	--
	77-11-30	--	30	--	--	0	--	--	--	--	--
	78-01-13	--	0	--	--	0	--	--	--	--	--
	78-02-02	--	90	--	--	0	--	--	--	--	--
	78-03-08	--	10	--	--	0	--	--	--	--	--
	78-05-24	--	0	--	--	0	--	--	--	--	--
	78-08-30	--	100	--	--	30	--	--	--	--	--
403240100503201	77-11-03	--	20	--	--	30	--	--	--	--	--
	78-02-02	--	30	--	--	30	--	--	--	--	--
	78-05-24	--	20	--	--	40	--	--	--	--	--
	78-08-31	--	50	--	--	40	--	--	--	--	--
403003100503201	77-11-02	--	130	--	--	330	--	--	--	--	--
	78-02-01	--	60	--	--	240	--	--	--	--	--
	78-05-24	--	10	--	--	150	--	--	--	--	--
	78-08-30	--	360	--	--	250	--	--	--	--	--
403003100480401	77-11-02	--	90	--	--	370	--	--	--	--	--
	78-02-01	--	1600	--	--	400	--	--	--	--	--
	78-05-24	--	80	--	--	360	--	--	--	--	--
	78-08-30	--	1100	--	--	390	--	--	--	--	--
402025101100202	77-11-03	--	830	--	--	510	--	--	--	--	--
	78-02-02	--	900	--	--	550	--	--	--	--	--
	78-05-24	--	1400	--	--	670	--	--	--	--	--
	78-08-31	--	580	--	--	400	--	--	--	--	--
403410100475501	77-11-03	--	20	--	--	30	--	--	--	--	--
	78-02-01	--	20	--	--	0	--	--	--	--	--
	78-05-24	--	50	--	--	10	--	--	--	--	--
	78-08-31	--	40	--	--	20	--	--	--	--	--
403247100593201	78-05-24	--	0	--	--	0	--	--	--	--	--
	78-08-31	--	20	--	--	20	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	LOCAL IDENT-I-FIER	COUNTY	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	DATE OF SAMPLE	TIME	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)
			BARNES COUNTY						
473917097405701	137-056-25ADA	003	112BNTL	80	78-07-19	1710	1950	9.0	600
463755097594501	137-058-34CCC	003	112SDPR	26	78-07-19	1830	405	6.5	150
464815098250701	138-061-06AAA	003	112SPRD	175	78-07-20	1055	720	8.0	330
465343098251101	140-061-31DDA	003	112SPRD	150	78-07-20	0945	1025	8.0	410
470613098213902	142-061-24BCC2	003	112SPRD	284	78-08-31	1230	1400	8.0	260
			CASS COUNTY						
463933096542001	137-049-30AAA	017	112WFRG	180	78-07-17	1345	1900	8.0	430
465036097180601	137-052-31BBB	017	112SNDL	17	78-07-17	1730	1350	9.0	550
464359096541301	138-049-29CCC	017	112WFRG	280	78-06-12	1400	2100	9.0	420
465147096515003	139-049-09DDD3	017	112WFRG	180	78-07-18	1500	825	8.5	190
465140096553001	139-049-10BBB	017	112WFRG	210	78-07-18	1345	2000	11.0	250
465048096565501	139-050-23AAA	017	112WFRG	150	78-07-18	1115	650	9.0	280
465509097332901	140-055-25AAA	017	112GCDF	220	78-07-19	1535	1490	9.0	320
470904097281501	142-054-01BBB	017	112PAGE	160	78-07-19	1115	580	8.0	280
470727097321301	142-054-08DDD	017	112PAGE	100	78-07-19	1330	480	9.0	250
			DICKEY COUNTY						
460311098224301	130-061-30BBB	021	112ELDL	80	78-06-09	1200	1350	9.0	470
			DUNN COUNTY						
470218102343201	141-094-15ABB	025	112BGFV	124	78-08-16	1015	3150	9.0	190
470645102122601	142-091-15CCC	025	112BGFV	143	78-08-14	1230	2600	9.0	110
472735102181801	146-091-17CDC	025	112BGFV	141	78-08-23	1415	1050	8.5	310
472537102144801	146-091-35BBC	025	112BGFV	221	78-08-23	1145	1100	8.0	350
			GRANT COUNTY						
460047101333801	129-087-10BBC	037	211FXHL	361	78-06-15	1645	2000	11.0	10
460159101500401	130-089-32DDA	037	211FXHL	543	78-06-15	1400	2640	13.0	9
461345101323801	132-087-27ADA	037	211HLCK	180	78-07-05	1830	1800	9.0	12
461542101535902	132-090-14AAB2	037	125TGRV	90	78-06-14	1600	2600	9.0	37
462043101102101	133-083-07CCB1	037	112SLDS	124	78-07-06	1215	1700	9.0	91
462005101080001	133-083-17DAA	037	112SLDS	244	78-07-06	1430	1800	9.0	190
462139101514301	133-089-04DAD	037	211HLCK	612	78-06-14	1315	2100	11.0	11
462916101510701	135-089-22CDD	037	125TGRV	201	78-06-21	1400	1350	9.0	9
463618101230101	136-085-08DDD	037	112EMCK	98	78-07-05	1330	1300	9.0	330
463938101470601	137-088-21DDC	037	211FXHL	921	78-06-22	1430	950	9.0	34
			MC LEAN COUNTY						
471415100545802	143-081-02BCC2	055	112PWLK	34	78-06-13	1600	540	9.0	280
471434100555601	147-081-19AAA	055	112LSLK	163	78-06-06	1700	1150	9.0	330
473239101021001	147-081-19AAA	055	112TLLK	99	78-06-08	1300	1700	9.0	82

Geologic unit (aquifer):

112BNTL - Bantel aquifer, Pleistocene age.
112SDPR - Sand Prairie aquifer, Pleistocene age.
112SPRD - Spiritwood aquifer, Pleistocene age.
112WFRG - West Fargo aquifer, Pleistocene age.
112SNDL - Sheyenne Delta aquifer, Pleistocene age.
112GCDF - Glacial drift undifferentiated, Pleistocene age.
112PAGE - Page aquifer, Pleistocene age.
112ELDL - Ellendale aquifer, Pleistocene age.
112BGFV - Buried glaciofluvial deposits, Pleistocene age.
211FXHL - Fox Hills Sandstone, Upper Cretaceous age.
211HLCK - Hell Creek formation, Upper Cretaceous age.
125TGRV - Tongue River Member of Fort Union Formation, Paleocene age.
112SLDS - Shields aquifer, Pleistocene age.
112EMCK - Elm Creek, Pleistocene age.
112PWLK - Painted Woods Lake aquifer, Pleistocene age.
112LSLK - Lost Lake aquifer, Pleistocene age.
112TLLK - Turtle Lake aquifer system, Pleistocene age.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
BARNES COUNTY											
473917097405701	78-07-19	200	160	49	220	44	3.9	14	484	0	397
463755097594501	78-07-19	0	39	13	27	27	1.0	3.2	208	0	171
464015098250701	78-07-20	22	90	26	26	14	.6	8.2	378	0	310
465543098251101	78-07-20	36	110	33	83	30	1.8	10	457	0	375
470613098213902	78-08-31	0	64	24	230	65	6.2	8.2	524	0	430
CASS COUNTY											
463933096542001	78-07-17	270	120	32	210	51	4.4	11	198	0	162
463836097100001	78-07-17	0	130	55	70	21	1.3	18	854	0	700
464359096541301	78-06-12	210	110	35	200	59	6.0	5.6	252	0	207
465147096515003	78-07-18	0	51	15	96	51	3.0	6.2	270	0	221
465140096553001	78-07-18	0	68	20	370	75	10	10	454	0	372
465048096565501	78-07-18	0	77	21	27	17	.7	6.3	357	0	293
465509097332901	78-07-19	0	100	17	210	58	5.1	12	505	0	414
470904097281501	78-07-19	4	80	19	21	14	.5	8.7	334	0	274
470727097321301	78-07-19	30	71	18	8.1	6	.2	7.1	270	0	221
DICKEY COUNTY											
460311098224301	78-06-09	53	140	29	130	37	2.6	12	507	0	416
DUNN COUNTY											
470218102343201	78-08-16	0	42	21	630	87	20	10	882	0	723
470645102122601	78-08-14	0	27	10	620	92	26	4.6	1750	19	1470
472735102181001	78-08-23	0	73	31	97	40	2.4	4.5	419	0	344
472537102144001	78-08-23	0	83	35	80	33	1.9	5.6	440	0	361
GRANT COUNTY											
460047101333001	78-06-15	0	3.2	.5	470	99	65	1.1	907	6	754
460159101500401	78-06-15	0	2.9	.5	600	99	86	1.6	847	10	711
461345101323001	78-07-05	0	2.6	1.3	440	99	56	1.0	921	9	770
461542101535902	78-06-14	0	9.9	3.0	610	97	44	3.1	639	3	529
462043101102101	78-07-06	0	24	7.5	380	90	17	3.1	641	0	526
462005101080001	78-07-06	0	46	18	370	80	12	8.8	796	0	653
462139101514301	78-06-14	0	3.1	.9	530	99	68	1.3	1140	30	998
462916101510701	78-06-21	0	3.3	.2	340	99	49	1.1	666	13	568
463618101230101	78-07-05	0	64	41	200	57	4.8	4.5	647	0	531
463938101470601	78-06-22	0	4.0	5.8	220	93	16	2.4	339	81	413
MC LEAN COUNTY											
471415100505802	78-06-13	0	72	24	22	14	.6	3.9	351	0	288
471434100555601	78-06-06	0	81	31	160	51	3.8	5.9	623	0	511
473239101021001	78-06-08	0	22	6.6	410	91	20	4.8	943	0	773

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	BORON, DIS-SOLVED (UG/L AS B) (01020)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
BARNES COUNTY									
473917097405701	78-07-19	510	110	.4	26	1340	1340	850	1400
463755097594501	78-07-19	28	4.7	.2	23	206	242	0	520
464815098250701	78-07-20	73	6.0	.2	28	467	448	0	1000
465343098251101	78-07-20	200	10	.2	30	688	707	230	1900
470613098213902	78-08-31	260	60	.2	27	965	940	290	1000
CASS COUNTY									
465933096542001	78-07-17	410	210	.1	19	1220	1120	160	1400
463036097180801	78-07-17	21	6.1	.1	31	680	754	70	720
464359096541301	78-06-12	360	340	.4	25	1310	1280	730	160
465147096515003	78-07-18	84	76	.3	28	459	490	160	110
465140096553001	78-07-18	77	450	.6	31	1200	1260	290	160
465040096565501	78-07-18	6.6	26	.1	17	332	359	100	590
465509097332901	78-07-19	330	18	.2	31	954	973	550	900
470904097201501	78-07-19	44	5.4	.1	30	363	376	0	1000
470727097321301	78-07-19	33	4.1	.2	32	278	317	200	370
DICKEY COUNTY									
460311098224301	78-06-09	330	14	.2	27	957	935	540	1500
DUNN COUNTY									
470210102343201	78-08-16	870	2.1	1.0	22	2100	2030	360	30
470645102122601	78-08-14	20	12	1.4	27	1610	1610	0	80
472735102181001	78-08-23	180	2.5	.6	25	630	622	260	240
472537102144801	78-08-23	170	2.2	.7	28	658	622	330	160
GRANT COUNTY									
460047101333801	78-06-15	1.6	220	2.9	9.9	1210	1170	2400	20
460159101500401	78-06-15	2.1	410	2.7	9.0	1530	1460	1900	20
461345101323801	78-07-05	98	78	3.0	14	1150	1100	2200	30
461542101535902	78-06-14	820	3.3	.2	6.9	1750	1780	340	100
462043101102101	78-07-06	370	4.7	1.3	22	1140	1130	880	100
462005101080001	78-07-06	250	41	1.2	19	1150	1150	1500	270
462139101514301	78-06-14	1.6	100	3.8	9.2	1270	1250	2200	90
462916101510701	78-06-21	160	16	3.2	6.6	877	874	690	20
463610101230101	78-07-05	210	6.0	1.0	22	871	869	390	360
463938101470601	78-06-22	62	22	.6	.6	571	566	730	20
MC LEAN COUNTY									
471415100545802	78-06-13	41	1.9	.1	24	381	365	240	500
471434100555601	78-06-06	150	21	.2	27	807	786	440	460
473239101021001	78-06-08	200	3.9	.3	24	1130	1140	880	60

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MORTON COUNTY

463700100540901	136-081-07AAA	059	112LTHR	294	78-07-19	1030	980	10.0	290
464734100543501	138-081-09ABB1	059	211FXHL	537	78-07-13	1300	4600	10.5	32
464820101303801	139-086-35CCC	059	112SIMS	133	78-08-07	1030	1575	9.0	60
464846101464503	139-088-34BCC3	059	125TGRV	294	78-07-12	1130	2600	10.0	18
465701101555701	139-089-08DDC	059	112KLDR	244	78-07-11	1145	1000	10.0	240
465401101504401	140-089-36ADD1	059	112EMCK	349	78-07-11	1315	2250	10.5	660
465401101504402	140-089-36ADD2	059	112EMCK	144	78-07-11	1330	2800	9.5	430

RICHLAND COUNTY

460118096592201	129-050-05BBB	077	112BRGD	140	78-07-06	1330	1180	9.0	560
460116097015201	129-051-01BBB	077	112BRGD	140	78-07-06	1445	1275	9.0	670
460356096561401	130-050-17DDD	077	112MLCL	57	78-07-06	1140	1600	9.0	870
460300096565002	130-050-27BBB2	077	112MLCL	100	78-07-06	0945	930	9.0	510
460519097091801	130-052-12BCB	077	112MLCL	40	78-07-06	1600	680	10.0	320
461937096364301	133-047-17DDD	077	112GCDF	80	78-06-13	1200	975	8.5	400
461941097102702	133-052-13CCC2	077	112SNDL	42	78-07-05	1730	725	9.0	420
462305097080102	134-051-29CCC2	077	112SNDL	41	78-07-05	1430	710	11.0	360
462633097115502	134-052-03DDD2	077	112SNDL	50	78-06-13	1715	660	9.0	320
463145097081201	135-051-06DDD	077	112SNDL	60	78-06-28	1415	570	10.0	300
463652097081401	135-051-07DDD	077	112SNDL	67	78-06-28	1630	675	10.0	360
462955097031101	135-051-23AAA	077	112SNDL	59	78-06-27	1815	540	9.0	250
463125097121401	135-052-10ACA1	077	112BGFV	240	78-07-26	1030	6500	9.0	310
462908097141501	135-052-21CCC	077	112SNDL	52	78-06-13	1515	590	9.0	290
463744097115602	136-052-03AAA2	077	112SNDL	25	78-06-14	1215	535	--	280
463744097164102	136-052-06BBB2	077	112SNDL	33	78-06-14	1310	580	10.0	380

SIOUX COUNTY

460336100390001	130-080-23DDD	085	112SLDS	190	78-06-27	1200	2200	10.0	230
460449101200701	130-085-17DAA	085	211FXHL	245	78-06-29	1000	2200	10.0	12
460244101272702	130-086-28CCC2	085	211HLCK	210	78-06-29	1330	1900	10.0	14
461600100561401	132-082-10CBC	085	112SLDS	128	78-06-22	1600	900	9.0	200
462245100375601	134-079-32ADD	085	112SBRG	288	78-06-26	1100	1600	9.0	66
462222100562701	134-082-36DCD	085	211FXHL	157	78-06-28	0845	2800	9.0	18

TRAILL COUNTY

472352097054401	145-051-01DDC	097	112HLBR	90	78-07-24	1045	2250	8.0	1200
472351097254801	145-053-04CCC	097	112GLBG	70	78-07-27	1400	600	8.5	300
473412097100202	147-051-09BAA2	097	112HLBR	140	78-06-15	1300	1125	8.0	75
473228097091501	147-051-22BBB	097	112HLBR	100	78-06-15	1140	3100	8.0	320
473556097103401	148-051-32AAA	097	112HLBR	58	78-06-15	1400	650	9.0	270

WELLS COUNTY

473507099541501	147-072-06BBB	103	112MFRD	87	78-06-06	1200	1200	9.0	300

Geologic unit (aquifer):
112LTHR - Little Heart aquifer, Pleistocene age.
211FXHL - Fox Hills Sandstone, Upper Cretaceous age.
112SIMS - Sims aquifer, Pleistocene age.
125TGRV - Tongue River Member of Fort Union Formation, Paleocene age.
112KLDR - Killdeer aquifer, Pleistocene age.
112EMCK - Elm Creek aquifer, Pleistocene age.
112BRGD - Brightwood aquifer, Pleistocene age.
112MLCL - Milnor Channel aquifer, Pleistocene age.
112GCDF - Glacial drift undifferentiated, Pleistocene age.
112SNDL - Sheyenne Delta aquifer, Pleistocene age.
112BGFV - Buried glaciofluvial deposits, Pleistocene age.
211HLCK - Hell Creek formation, Upper Cretaceous age.
112SLDS - Shields aquifer, Pleistocene age.
112SBRG - Strasburg aquifer, Pleistocene age.
112HLBR - Hillsboro aquifer, Pleistocene age.
112GLBG - Galesburg aquifer, Pleistocene age.
112MFRD - Manfred aquifer, Pleistocene age.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MORTON COUNTY											
463708100540901	78-07-19	0	77	24	88	38	2.2	12	467	0	383
464734100543501	78-07-13	0	7.9	3.0	970	98	75	3.4	1100	0	902
464820101303801	78-08-07	0	16	4.9	370	93	21	2.1	856	0	702
464846101464503	78-07-12	0	2.6	2.8	630	99	65	2.1	1300	10	1100
465701101555701	78-07-11	0	52	27	140	56	3.9	2.6	558	0	458
465401101504401	78-07-11	67	140	75	410	57	7.0	12	721	0	591
465401101504402	78-07-11	0	100	44	260	56	5.5	6.8	791	0	649
RICHLAND COUNTY											
460118096592201	78-07-06	250	170	33	27	9	.5	5.0	383	0	314
460116097015201	78-07-06	330	190	48	21	6	.4	5.7	415	0	340
460358096581401	78-07-06	390	150	120	42	9	.6	7.2	579	0	475
460300096565002	78-07-06	220	140	39	16	6	.3	4.5	355	0	291
460519097091801	78-07-06	54	87	25	18	11	.4	4.3	325	0	267
461937096364301	78-06-13	0	99	37	71	28	1.5	5.7	529	0	434
461941097102702	78-07-05	0	74	57	32	14	.7	6.1	593	0	486
462305097088102	78-07-05	0	97	29	16	9	.4	6.6	462	0	379
462633097115502	78-06-13	0	96	19	12	7	.3	5.8	419	0	344
463145097081201	78-06-28	0	88	22	4.9	3	.1	2.1	385	0	316
463652097081401	78-06-28	0	100	27	7.2	4	.2	5.8	461	0	378
462955097031101	78-06-27	0	64	22	15	11	.4	4.2	341	0	280
463125097121401	78-07-26	17	87	23	1000	87	25	13	360	0	295
462908097141501	78-06-13	0	83	20	6.9	5	.2	2.2	353	0	290
463744097115602	78-06-14	32	69	26	3.9	3	.1	2.1	302	0	248
463744097164102	78-06-14	0	82	23	5.3	4	.1	2.5	373	0	306
SIOUX COUNTY											
460336100390001	78-06-27	0	56	22	440	80	13	6.6	834	0	684
460449101200701	78-06-29	0	3.3	1.0	510	99	63	1.5	875	5	726
460244101272702	78-06-29	0	4.0	1.0	480	99	56	1.1	810	18	694
461600100561401	78-06-22	0	48	19	140	60	4.3	4.9	545	0	447
462245100375601	78-06-26	0	16	6.3	380	92	20	3.8	911	0	747
462222100562701	78-06-28	0	4.7	1.6	640	98	65	2.4	1080	0	886
TRAILL COUNTY											
472352097054401	78-07-24	950	330	91	150	21	1.9	9.4	300	0	246
472351097254801	78-07-27	77	82	23	4.6	3	.1	2.9	271	0	222
473412097100202	78-06-15	0	19	6.7	220	84	11	11	386	0	317
473228097091501	78-06-15	72	83	27	560	78	14	20	300	0	246
473556097103401	78-06-15	120	75	20	21	14	.6	7.8	180	0	148
WELLS COUNTY											
473507099541501	78-06-06	0	67	32	200	59	5.0	7.5	661	0	542

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MORTON COUNTY

463700100540901	78-07-19	88	1.3	.3	29	561	553	0	400
464734100543501	78-07-13	3.3	890	.6	16	2420	2440	2300	30
464020101303001	78-08-07	160	3.4	1.1	28	1030	1010	520	70
464046101464503	78-07-12	290	10	4.9	9.4	1610	1610	360	60
465701101555701	78-07-11	62	1.1	.6	23	559	580	260	50
465401101504401	78-07-11	980	2.3	.4	24	2060	2010	520	140
465401101504402	78-07-11	330	.9	.4	16	1150	1150	30	60

RICHLAND COUNTY

460118096592201	78-07-06	290	4.8	.1	27	829	746	330	360
460116097015201	78-07-06	340	4.3	.1	26	912	841	70	520
460358096581401	78-07-06	480	7.0	.2	28	1190	1120	290	310
460308096565002	78-07-06	230	2.5	.1	24	663	632	100	600
460519097091801	78-07-06	88	13	.1	24	457	422	490	740
461937096364301	78-06-13	98	16	.6	24	650	614	340	300
461941097102702	78-07-05	6.2	2.1	.4	25	541	497	260	290
462305097080102	78-07-05	18	2.4	.3	26	432	425	290	560
462633097115502	78-06-13	8.2	2.6	.3	27	364	380	0	400
463145097081201	78-06-28	2.5	1.7	.2	28	373	341	0	380
463652097001401	78-06-28	2.1	.6	.2	29	394	400	0	410
462955097031101	78-06-27	12	.7	.2	27	316	315	0	430
463125097121401	78-07-26	1300	660	1.9	27	3130	3300	160	260
462908097141501	78-06-13	9.1	2.4	.1	25	333	329	290	460
463744097115602	78-06-14	25	4.9	.2	22	307	304	100	460
463744097164102	78-06-14	1.2	1.8	.2	26	355	328	150	440

SIOUX COUNTY

460336100390001	78-06-27	480	3.3	.5	30	1490	1450	640	140
460449101200701	78-06-29	2.9	270	2.5	16	1260	1250	2200	30
460244101272702	78-06-29	260	39	2.7	16	1220	1220	2200	50
461600100561401	78-06-22	65	.7	1.1	17	574	568	780	380
462245100375601	78-06-26	140	4.7	1.3	18	1030	1020	1800	140
462222100562701	78-06-28	470	49	2.1	14	1810	1720	2700	50

TRAILL COUNTY

472352097054401	78-07-24	1000	160	.2	23	2040	1910	0	740
472351097254801	78-07-27	82	6.2	1.7	24	354	362	70	560
473412097100202	78-06-15	180	33	1.3	27	685	690	200	80
473228097091501	78-06-15	730	420	1.9	25	2010	2020	1800	240
473556097103401	78-06-15	110	38	.4	14	445	378	150	360

WELLS COUNTY

473507099541501	78-06-06	190	6.2	.3	31	831	862	780	140

ALPHABETIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
39332	ALDRIN, SUSPENDED TOTAL (UG/L)
39332	ALDRIN, SUSPENDED (UG/L)
01505	ALPHA, SUSPENDED TOTAL (PCI/L)
01505	ALPHA, SUSPENDED (PCI/L)
01506	ALPHA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
01506	ALPHA, SUSPENDED, COUNTING ERROR (PCI/L)
01105	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)
01105	ALUMINUM, TOTAL (UG/L AS AL)
01107	ALUMINUM, SUSPENDED RECOVERABLE (UG/L AS AL)
01107	ALUMINUM, SUSPENDED (UG/L AS AL)
01108	ALUMINUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AL)
01108	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G AS AL)
01096	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)
01096	ANTIMONY, SUSPENDED (UG/L AS SB)
39502	AROCLOR, SUSPENDED TOTAL, 1248 PCB SERIES (UG/L)
39502	AROCLOR, SUSPENDED, 1248 PCB SERIES (UG/L)
39506	AROCLOR, SUSPENDED TOTAL, 1254 PCB SERIES (UG/L)
39506	AROCLOR, SUSPENDED, 1254 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED TOTAL, 1260 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED, 1260 PCB SERIES (UG/L)
01001	ARSENIC, SUSPENDED TOTAL (UG/L AS AS)
01001	ARSENIC, SUSPENDED (UG/L AS AS)
01006	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)
01006	BARIUM, SUSPENDED (UG/L AS BA)
01007	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
01007	BARIUM, TOTAL (UG/L AS BA)
01008	BARIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BA)
01008	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BA)
01011	BERYLLIUM, SUSPENDED RECOVERABLE (UG/L AS BE)
01011	BERYLLIUM, SUSPENDED (UG/L AS BE)
01012	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)
01012	BERYLLIUM, TOTAL (UG/L AS BE)
01013	BERYLLIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BE)
01013	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BE)
03505	BETA, SUSPENDED TOTAL (PCI/L)
03505	BETA, SUSPENDED (PCI/L)

NUMERIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
00623	NITROGEN, AMMONIA PLUS ORGANIC, DISSOLVED (MG/L AS N)
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)
00624	NITROGEN, AMMONIA PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS N)
00624	NITROGEN, KJELDAHL, SUSPENDED (MG/L AS N)
00625	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL (MG/L AS N)
00625	NITROGEN, KJELDAHL, TOTAL (MG/L AS N)
00626	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00626	NITROGEN, KJELDAHL, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00683	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00683	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED TOTAL (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED (MG/L AS C)
00916	CALCIUM, TOTAL RECOVERABLE (MG/L AS CA)
00916	CALCIUM, TOTAL (MG/L AS CA)
00926	MAGNESIUM, SUSPENDED RECOVERABLE (MG/L AS MG)
00926	MAGNESIUM, SUSPENDED (MG/L AS MG)
00927	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
01001	ARSENIC, SUSPENDED TOTAL (UG/L AS AS)
01001	ARSENIC, SUSPENDED (UG/L AS AS)
01006	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)
01006	BARIUM, SUSPENDED (UG/L AS BA)
01007	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
01007	BARIUM, TOTAL (UG/L AS BA)
01008	BARIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BA)
01008	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BA)
01011	BERYLLIUM, SUSPENDED RECOVERABLE (UG/L AS BE)
01011	BERYLLIUM, SUSPENDED (UG/L AS BE)
01012	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)
01012	BERYLLIUM, TOTAL (UG/L AS BE)
01013	BERYLLIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BE)
01013	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BE)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
03506	BETA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
03506	BETA, SUSPENDED, COUNTING ERROR (PCI/L)
01016	BISMUTH, SUSPENDED TOTAL (UG/L AS BI)
01016	BISMUTH, SUSPENDED (UG/L AS BI)
01021	BORON, SUSPENDED RECOVERABLE (UG/L AS B)
01021	BORON, SUSPENDED (UG/L AS B)
01022	BORON, TOTAL RECOVERABLE (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01023	BORON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS B)
01023	BORON, TOTAL IN BOTTOM MATERIAL (UG/G AS B)
01026	CADMIUM, SUSPENDED RECOVERABLE (UG/L AS CD)
01026	CADMIUM, SUSPENDED (UG/L AS CD)
01027	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)
01027	CADMIUM, TOTAL (UG/L AS CD)
01028	CADMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CD)
01028	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CD)
00916	CALCIUM, TOTAL RECOVERABLE (MG/L AS CA)
00916	CALCIUM, TOTAL (MG/L AS CA)
07052	CALCIUM 45, SUSPENDED TOTAL (PCI/L)
07052	CALCIUM 45, SUSPENDED (PCI/L)
07053	CALCIUM 45, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07053	CALCIUM 45, SUSPENDED, COUNTING ERROR (PCI/L)
00683	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00683	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED TOTAL (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED (MG/L AS C)
01116	CESIUM, SUSPENDED TOTAL (UG/L AS CS)
01116	CESIUM, SUSPENDED (UG/L AS CS)
28404	CESIUM 137, SUSPENDED TOTAL (PCI/L)
28404	CESIUM 137, SUSPENDED (PCI/L)
28405	CESIUM 137,SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28405	CESIUM 137,SUSPENDED, COUNTING ERROR (PCI/L)
28412	CESIUM 134, SUSPENDED TOTAL (PCI/L)
28412	CESIUM 134, SUSPENDED (PCI/L)
01016	BISMUTH, SUSPENDED TOTAL (UG/L AS BI)
01016	BISMUTH, SUSPENDED (UG/L AS BI)
01021	BORON, SUSPENDED RECOVERABLE (UG/L AS B)
01021	BORON, SUSPENDED (UG/L AS B)
01022	BORON, TOTAL RECOVERABLE (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01023	BORON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS B)
01023	BORON, TOTAL IN BOTTOM MATERIAL (UG/G AS B)
01026	CADMIUM, SUSPENDED RECOVERABLE (UG/L AS CD)
01026	CADMIUM, SUSPENDED (UG/L AS CD)
01027	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)
01027	CADMIUM, TOTAL (UG/L AS CD)
01028	CADMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CD)
01028	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CD)
01029	CHROMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CR)
01029	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CR)
01031	CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR)
01031	CHROMIUM, SUSPENDED (UG/L AS CR)
01034	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
01034	CHROMIUM, TOTAL (UG/L AS CR)
01036	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)
01036	COBALT, SUSPENDED (UG/L AS CO)
01037	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
01037	COBALT, TOTAL (UG/L AS CO)
01038	COBALT, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CO)
01038	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G AS CO)
01041	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)
01041	COPPER, SUSPENDED (UG/L AS CU)
01042	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
01042	COPPER, TOTAL (UG/L AS CU)
01043	COPPER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CU)
01043	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G AS CU)
01044	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)
01044	IRON, SUSPENDED (UG/L AS FE)
01045	IRON, TOTAL RECOVERABLE (UG/L AS FE)
01045	IRON, TOTAL (UG/L AS FE)
01050	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)
01050	LEAD, SUSPENDED (UG/L AS PB)

ALPHABETIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
28413	CESIUM 134, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28413	CESIUM 134, SUSPENDED, COUNTING ERROR (PCI/L)
39353	CHLORDANE, SUSPENDED TOTAL (UG/L)
39353	CHLORDANE, SUSPENDED (UG/L)
01029	CHROMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CR)
01029	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CR)
01031	CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR)
01031	CHROMIUM, SUSPENDED (UG/L AS CR)
01034	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
01034	CHROMIUM, TOTAL (UG/L AS CR)
01036	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)
01036	COBALT, SUSPENDED (UG/L AS CO)
01037	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
01037	COBALT, TOTAL (UG/L AS CO)
01038	COBALT, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CO)
01038	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G AS CO)
01041	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)
01041	COPPER, SUSPENDED (UG/L AS CU)
01042	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
01042	COPPER, TOTAL (UG/L AS CU)
01043	COPPER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CU)
01043	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G AS CU)
39362	DDD, SUSPENDED TOTAL (UG/L)
39362	DDD, SUSPENDED (UG/L)
39367	DDE, SUSPENDED TOTAL (UG/L)
39367	DDE, SUSPENDED (UG/L)
39372	DDT, SUSPENDED TOTAL (UG/L)
39372	DDT, SUSPENDED (UG/L)
39573	DIAZINON, SUSPENDED TOTAL (UG/L)
39573	DIAZINON, SUSPENDED (UG/L)
39382	DIELDRIN, SUSPENDED TOTAL (UG/L)
39382	DIELDRIN, SUSPENDED (UG/L)
39392	ENDRIN, SUSPENDED TOTAL (UG/L)
39392	ENDRIN, SUSPENDED (UG/L)
01121	GALLIUM, SUSPENDED TOTAL (UG/L AS GA)
01121	GALLIUM, SUSPENDED (UG/L AS GA)
01126	GERMANIUM, SUSPENDED TOTAL (UG/L AS GE)
01126	GERMANIUM, SUSPENDED (UG/L AS GE)

NUMERIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01051	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
01051	LEAD, TOTAL (UG/L AS PB)
01052	LEAD, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS PB)
01052	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G AS PB)
01053	MANGANESE, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MN)
01053	MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G AS MN)
01054	MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN)
01054	MANGANESE, SUSPENDED (UG/L AS MN)
01055	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
01055	MANGANESE, TOTAL (UG/L AS MN)
01061	MOLYBDENUM, SUSPENDED RECOVERABLE (UG/L AS MO)
01061	MOLYBDENUM, SUSPENDED (UG/L AS MO)
01062	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)
01062	MOLYBDENUM, TOTAL (UG/L AS MO)
01063	MOLYBDENUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MO)
01063	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G AS MO)
01066	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
01066	NICKEL, SUSPENDED (UG/L AS NI)
01067	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
01067	NICKEL, TOTAL (UG/L AS NI)
01068	NICKEL, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS NI)
01068	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G AS NI)
01076	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)
01076	SILVER, SUSPENDED (UG/L AS AG)
01077	SILVER, TOTAL RECOVERABLE (UG/L AS AG)
01077	SILVER, TOTAL (UG/L AS AG)
01078	SILVER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AG)
01078	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G AS AG)
01081	STRONTIUM, SUSPENDED RECOVERABLE (UG/L AS SR)
01081	STRONTIUM, SUSPENDED (UG/L AS SR)
01082	STRONTIUM, TOTAL RECOVERABLE (UG/L AS SR)
01082	STRONTIUM, TOTAL (UG/L AS SR)
01083	STRONTIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS SR)
01083	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS SR)
01086	VANADIUM, SUSPENDED TOTAL (UG/L AS V)
01086	VANADIUM, SUSPENDED (UG/L AS V)
01091	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)
01091	ZINC, SUSPENDED (UG/L AS ZN)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS U NATURAL)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/L AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/G AS U NATURAL)
80040	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/L AS U NATURAL)
80040	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/L AS U NATURAL)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS SR/YT-90)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS SR/YT-90)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS CS-137)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS CS-137)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS SR/YT-90)
03517	GROSS BETA RADIOACTIVITY, SUSPENDEQ (PCI/G AS SR/YT-90)
03518	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS CS-137)
03518	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS CS-137)
39412	HEPTACHLOR, SUSPENDED TOTAL (UG/L)
39412	HEPTACHLOR, SUSPENDED (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED TOTAL (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED (UG/L)
01044	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)
01044	IRON, SUSPENDED (UG/L AS FE)
01045	IRON, TOTAL RECOVERABLE (UG/L AS FE)
01045	IRON, TOTAL (UG/L AS FE)
01170	IRON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS FE)
01170	IRON, TOTAL IN BOTTOM MATERIAL (UG/G AS FE)
07062	IRON 59, SUSPENDED TOTAL (PCI/L)
07062	IRON 59, SUSPENDED (PCI/L)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01092	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
01092	ZINC, TOTAL (UG/L AS ZN)
01093	ZINC, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS ZN)
01093	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G AS ZN)
01096	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)
01096	ANTIMONY, SUSPENDED (UG/L AS SB)
01101	TIN, SUSPENDED RECOVERABLE (UG/L AS SN)
01101	TIN, SUSPENDED (UG/L AS SN)
01102	TIN, TOTAL RECOVERABLE (UG/L AS SN)
01102	TIN, TOTAL (UG/L AS SN)
01105	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)
01105	ALUMINUM, TOTAL (UG/L AS AL)
01107	ALUMINUM, SUSPENDED RECOVERABLE (UG/L AS AL)
01107	ALUMINUM, SUSPENDED (UG/L AS AL)
01108	ALUMINUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AL)
01108	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G AS AL)
01116	CESIUM, SUSPENDED TOTAL (UG/L AS CS)
01116	CESIUM, SUSPENDED (UG/L AS CS)
01121	GALLIUM, SUSPENDED TOTAL (UG/L AS GA)
01121	GALLIUM, SUSPENDED (UG/L AS GA)
01126	GERMANIUM, SUSPENDED TOTAL (UG/L AS GE)
01126	GERMANIUM, SUSPENDED (UG/L AS GE)
01131	LITHIUM, SUSPENDED RECOVERABLE (UG/L AS LI)
01131	LITHIUM, SUSPENDED (UG/L AS LI)
01132	LITHIUM, TOTAL RECOVERABLE (UG/L AS LI)
01132	LITHIUM, TOTAL (UG/L AS LI)
01136	RUBIDIUM, SUSPENDED TOTAL (UG/L AS RB)
01136	RUBIDIUM, SUSPENDED (UG/L AS RB)
01146	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)
01146	SELENIUM, SUSPENDED (UG/L AS SE)
01151	TITANIUM, SUSPENDED TOTAL (UG/L AS TI)
01151	TITANIUM, SUSPENDED (UG/L AS TI)
01161	ZIRCONIUM, SUSPENDED TOTAL (UG/L AS ZR)
01161	ZIRCONIUM, SUSPENDED (UG/L AS ZR)
01170	IRON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS FE)
01170	IRON, TOTAL IN BOTTOM MATERIAL (UG/G AS FE)
01505	ALPHA, SUSPENDED TOTAL (PCI/L)
01505	ALPHA, SUSPENDED (PCI/L)

ALPHABETIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
07063	IRON 59, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07063	IRON 59, SUSPENDED, COUNTING ERROR (PCI/L)
39432	ISODRIN, SUSPENDED TOTAL (UG/L)
39432	ISODRIN, SUSPENDED (UG/L)
01050	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)
01050	LEAD, SUSPENDED (UG/L AS PB)
01051	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
01051	LEAD, TOTAL (UG/L AS PB)
01052	LEAD, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS PB)
01052	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G AS PB)
39342	LINDANE, SUSPENDED TOTAL (UG/L)
39342	LINDANE, SUSPENDED (UG/L)
01131	LITHIUM, SUSPENDED RECOVERABLE (UG/L AS LI)
01131	LITHIUM, SUSPENDED (UG/L AS LI)
01132	LITHIUM, TOTAL RECOVERABLE (UG/L AS LI)
01132	LITHIUM, TOTAL (UG/L AS LI)
00926	MAGNESIUM, SUSPENDED RECOVERABLE (MG/L AS MG)
00926	MAGNESIUM, SUSPENDED (MG/L AS MG)
00927	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
39533	MALATHION, SUSPENDED TOTAL (UG/L)
39533	MALATHION, SUSPENDED (UG/L)
01053	MANGANESE, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MN)
01053	MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G AS MN)
01054	MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN)
01054	MANGANESE, SUSPENDED (UG/L AS MN)
01055	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
01055	MANGANESE, TOTAL (UG/L AS MN)
71895	MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG)
71895	MERCURY, SUSPENDED (UG/L AS HG)
71900	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)
71900	MERCURY, TOTAL (UG/L AS HG)
71921	MERCURY, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS HG)
71921	MERCURY, TOTAL IN BOTTOM MATERIAL (UG/G AS HG)
39603	METHYL PARATHION, SUSPENDED TOTAL (UG/L)
39603	METHYL PARATHION, SUSPENDED (UG/L)
39757	MIREX, SUSPENDED TOTAL (UG/L)
39757	MIREX, SUSPENDED (UG/L)

NUMERIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01506	ALPHA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
01506	ALPHA, SUSPENDED, COUNTING ERROR (PCI/L)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS U NATURAL)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/L AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/G AS U NATURAL)
03505	BETA, SUSPENDED TOTAL (PCI/L)
03505	BETA, SUSPENDED (PCI/L)
03506	BETA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
03506	BETA, SUSPENDED, COUNTING ERROR (PCI/L)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS CS-137)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS CS-137)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS SR/YT-90)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS SR/YT-90)
03518	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS CS-137)
03518	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS CS-137)
07010	TRITIUM, SUSPENDED TOTAL (PCI/L)
07010	TRITIUM, SUSPENDED (PCI/L)
07011	TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07011	TRITIUM, SUSPENDED, COUNTING ERROR (PCI/L)
07014	TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (TRITIUM UNITS)
07014	TRITIUM, SUSPENDED, COUNTING ERROR (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED TOTAL (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED (TRITIUM UNITS)
07052	CALCIUM 45, SUSPENDED TOTAL (PCI/L)
07052	CALCIUM 45, SUSPENDED (PCI/L)
07053	CALCIUM 45, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07053	CALCIUM 45, SUSPENDED, COUNTING ERROR (PCI/L)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01061	MOLYBDENUM, SUSPENDED RECOVERABLE (UG/L AS MO)
01061	MOLYBDENUM, SUSPENDED (UG/L AS MO)
01062	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)
01062	MOLYBDENUM, TOTAL (UG/L AS MO)
01063	MOLYBDENUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MO)
01063	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G AS MO)
01066	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
01066	NICKEL, SUSPENDED (UG/L AS NI)
01067	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
01067	NICKEL, TOTAL (UG/L AS NI)
01068	NICKEL, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS NI)
01068	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G AS NI)
00623	NITROGEN, AMMONIA PLUS ORGANIC, DISSOLVED (MG/L AS N)
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)
00624	NITROGEN, AMMONIA PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS N)
00624	NITROGEN, KJELDAHL, SUSPENDED (MG/L AS N)
00625	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL (MG/L AS N)
00625	NITROGEN, KJELDAHL, TOTAL (MG/L AS N)
00626	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00626	NITROGEN, KJELDAHL, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
39543	PARATHION, SUSPENDED TOTAL (UG/L)
39543	PARATHION, SUSPENDED (UG/L)
39518	PCB, SUSPENDED TOTAL (UG/L)
39518	PCB, SUSPENDED (UG/L)
09505	RADIUM 226, SUSPENDED TOTAL (PCI/L)
09505	RADIUM 226, SUSPENDED (PCI/L)
07082	RHODAMINE WT, SUSPENDED TOTAL (UG/L)
07082	RHODAMINE WT, SUSPENDED (UG/L)
01136	RUBIDIUM, SUSPENDED TOTAL (UG/L AS RB)
01136	RUBIDIUM, SUSPENDED (UG/L AS RB)
29633	SCANDIUM 46, SUSPENDED TOTAL (PCI/L)
29633	SCANDIUM 46, SUSPENDED (PCI/L)
29634	SCANDIUM 46, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
29634	SCANDIUM 46, SUSPENDED, COUNTING ERROR (PCI/L)
01146	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)
01146	SELENIUM, SUSPENDED (UG/L AS SE)
07102	SELENIUM 75, SUSPENDED TOTAL (PCI/L)
07102	SELENIUM 75, SUSPENDED (PCI/L)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
07062	IRON 59, SUSPENDED TOTAL (PCI/L)
07062	IRON 59, SUSPENDED (PCI/L)
07063	IRON 59, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07063	IRON 59, SUSPENDED, COUNTING ERROR (PCI/L)
07082	RHODAMINE WT, SUSPENDED TOTAL (UG/L)
07082	RHODAMINE WT, SUSPENDED (UG/L)
07102	SELENIUM 75, SUSPENDED TOTAL (PCI/L)
07102	SELENIUM 75, SUSPENDED (PCI/L)
07103	SELENIUM 75, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07103	SELENIUM 75, SUSPENDED, COUNTING ERROR (PCI/L)
07122	SILVER 110, SUSPENDED TOTAL (PCI/L)
07122	SILVER 110, SUSPENDED (PCI/L)
07123	SILVER 110, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07123	SILVER 110, SUSPENDED, COUNTING ERROR (PCI/L)
07142	SULFUR 35, SUSPENDED TOTAL (PCI/L)
07142	SULFUR 35, SUSPENDED (PCI/L)
07143	SULFUR 35, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07143	SULFUR 35, SUSPENDED, COUNTING ERROR (PCI/L)
09505	RADIUM 226, SUSPENDED TOTAL (PCI/L)
09505	RADIUM 226, SUSPENDED (PCI/L)
13505	STRONTIUM 90, SUSPENDED TOTAL (PCI/L)
13505	STRONTIUM 90, SUSPENDED (PCI/L)
13506	STRONTIUM 90, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
13506	STRONTIUM 90, SUSPENDED, COUNTING ERROR (PCI/L)
22705	URANIUM, NATURAL, SUSPENDED TOTAL (UG/L AS U NATURAL)
22705	URANIUM, NATURAL, SUSPENDED (UG/L AS U NATURAL)
28404	CESIUM 137, SUSPENDED TOTAL (PCI/L)
28404	CESIUM 137, SUSPENDED (PCI/L)
28405	CESIUM 137,SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28405	CESIUM 137,SUSPENDED, COUNTING ERROR (PCI/L)
28412	CESIUM 134, SUSPENDED TOTAL (PCI/L)
28412	CESIUM 134, SUSPENDED (PCI/L)
28413	CESIUM 134, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28413	CESIUM 134, SUSPENDED, COUNTING ERROR (PCI/L)
29633	SCANDIUM 46, SUSPENDED TOTAL (PCI/L)
29633	SCANDIUM 46, SUSPENDED (PCI/L)
29634	SCANDIUM 46, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
29634	SCANDIUM 46, SUSPENDED, COUNTING ERROR (PCI/L)

ALPHABETIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
07103	SELENIUM 75, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07103	SELENIUM 75, SUSPENDED, COUNTING ERROR (PCI/L)
01076	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)
01076	SILVER, SUSPENDED (UG/L AS AG)
01077	SILVER, TOTAL RECOVERABLE (UG/L AS AG)
01077	SILVER, TOTAL (UG/L AS AG)
01078	SILVER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AG)
01078	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G AS AG)
07122	SILVER 110, SUSPENDED TOTAL (PCI/L)
07122	SILVER 110, SUSPENDED (PCI/L)
07123	SILVER 110, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07123	SILVER 110, SUSPENDED, COUNTING ERROR (PCI/L)
39763	SILVEX, SUSPENDED TOTAL (UG/L)
39763	SILVEX, SUSPENDED (UG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED TOTAL (MG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED (MG/L)
01081	STRONTIUM, SUSPENDED RECOVERABLE (UG/L AS SR)
01081	STRONTIUM, SUSPENDED (UG/L AS SR)
01082	STRONTIUM, TOTAL RECOVERABLE (UG/L AS SR)
01082	STRONTIUM, TOTAL (UG/L AS SR)
01083	STRONTIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS SR)
01083	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS SR)
13505	STRONTIUM 90, SUSPENDED TOTAL (PCI/L)
13505	STRONTIUM 90, SUSPENDED (PCI/L)
13506	STRONTIUM 90, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
13506	STRONTIUM 90, SUSPENDED, COUNTING ERROR (PCI/L)
07142	SULFUR 35, SUSPENDED TOTAL (PCI/L)
07142	SULFUR 35, SUSPENDED (PCI/L)
07143	SULFUR 35, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07143	SULFUR 35, SUSPENDED, COUNTING ERROR (PCI/L)
01101	TIN, SUSPENDED RECOVERABLE (UG/L AS SN)
01101	TIN, SUSPENDED (UG/L AS SN)
01102	TIN, TOTAL RECOVERABLE (UG/L AS SN)
01102	TIN, TOTAL (UG/L AS SN)
01151	TITANIUM, SUSPENDED TOTAL (UG/L AS TI)
01151	TITANIUM, SUSPENDED (UG/L AS TI)
39402	TOXAPHENE, SUSPENDED TOTAL (UG/L)
39402	TOXAPHENE, SUSPENDED (UG/L)

NUMERIC LISTING

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
39332	ALDRIN, SUSPENDED TOTAL (UG/L)
39332	ALDRIN, SUSPENDED (UG/L)
39342	LINDANE, SUSPENDED TOTAL (UG/L)
39342	LINDANE, SUSPENDED (UG/L)
39353	CHLORDANE, SUSPENDED TOTAL (UG/L)
39353	CHLORDANE, SUSPENDED (UG/L)
39362	DDD, SUSPENDED TOTAL (UG/L)
39362	DDD, SUSPENDED (UG/L)
39367	DDE, SUSPENDED TOTAL (UG/L)
39367	DDE, SUSPENDED (UG/L)
39372	DDT, SUSPENDED TOTAL (UG/L)
39372	DDT, SUSPENDED (UG/L)
39382	DIELDRIN, SUSPENDED TOTAL (UG/L)
39382	DIELDRIN, SUSPENDED (UG/L)
39392	ENDRIN, SUSPENDED TOTAL (UG/L)
39392	ENDRIN, SUSPENDED (UG/L)
39402	TOXAPHENE, SUSPENDED TOTAL (UG/L)
39402	TOXAPHENE, SUSPENDED (UG/L)
39412	HEPTACHLOR, SUSPENDED TOTAL (UG/L)
39412	HEPTACHLOR, SUSPENDED (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED TOTAL (UG/L)
39422	HEPTACHLOR EPOXIDE, SUSPENDED (UG/L)
39432	ISODRIN, SUSPENDED TOTAL (UG/L)
39432	ISODRIN, SUSPENDED (UG/L)
39502	AROCLOR, SUSPENDED TOTAL, 1248 PCB SERIES (UG/L)
39502	AROCLOR, SUSPENDED, 1248 PCB SERIES (UG/L)
39506	AROCLOR, SUSPENDED TOTAL, 1254 PCB SERIES (UG/L)
39506	AROCLOR, SUSPENDED, 1254 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED TOTAL, 1260 PCB SERIES (UG/L)
39510	AROCLOR, SUSPENDED, 1260 PCB SERIES (UG/L)
39518	PCB, SUSPENDED TOTAL (UG/L)
39518	PCB, SUSPENDED (UG/L)
39533	MALATHION, SUSPENDED TOTAL (UG/L)
39533	MALATHION, SUSPENDED (UG/L)
39543	PARATHION, SUSPENDED TOTAL (UG/L)
39543	PARATHION, SUSPENDED (UG/L)
39573	DIAZINON, SUSPENDED TOTAL (UG/L)
39573	DIAZINON, SUSPENDED (UG/L)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
07010	TRITIUM, SUSPENDED TOTAL (PCI/L)
07010	TRITIUM, SUSPENDED (PCI/L)
07011	TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07011	TRITIUM, SUSPENDED, COUNTING ERROR (PCI/L)
07014	TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (TRITIUM UNITS)
07014	TRITIUM, SUSPENDED, COUNTING ERROR (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED TOTAL (TRITIUM UNITS)
07016	TRITIUM, SUSPENDED (TRITIUM UNITS)
22705	URANIUM, NATURAL, SUSPENDED TOTAL (UG/L AS U NATURAL)
22705	URANIUM, NATURAL, SUSPENDED (UG/L AS U NATURAL)
01086	VANADIUM, SUSPENDED TOTAL (UG/L AS V)
01086	VANADIUM, SUSPENDED (UG/L AS V)
01091	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)
01091	ZINC, SUSPENDED (UG/L AS ZN)
01092	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
01092	ZINC, TOTAL (UG/L AS ZN)
01093	ZINC, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS ZN)
01093	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G AS ZN)
01161	ZIRCONIUM, SUSPENDED TOTAL (UG/L AS ZR)
01161	ZIRCONIUM, SUSPENDED (UG/L AS ZR)
39733	2,4-D, SUSPENDED TOTAL (UG/L)
39733	2,4-D, SUSPENDED (UG/L)
39743	2,4,5-T, SUSPENDED TOTAL (UG/L)
39743	2,4,5-T, SUSPENDED (UG/L)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
39603	METHYL PARATHION, SUSPENDED TOTAL (UG/L)
39603	METHYL PARATHION, SUSPENDED (UG/L)
39733	2,4-D, SUSPENDED TOTAL (UG/L)
39733	2,4-D, SUSPENDED (UG/L)
39743	2,4,5-T, SUSPENDED TOTAL (UG/L)
39743	2,4,5-T, SUSPENDED (UG/L)
39757	MIREX, SUSPENDED TOTAL (UG/L)
39757	MIREX, SUSPENDED (UG/L)
39763	SILVEX, SUSPENDED TOTAL (UG/L)
39763	SILVEX, SUSPENDED (UG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED TOTAL (MG/L)
70299	SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED (MG/L)
71895	MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG)
71895	MERCURY, SUSPENDED (UG/L AS HG)
71900	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)
71900	MERCURY, TOTAL (UG/L AS HG)
71921	MERCURY, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS HG)
71921	MERCURY, TOTAL IN BOTTOM MATERIAL (UG/G AS HG)
80040	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/L AS U NATURAL)
80040	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/L AS U NATURAL)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS SR/YT-90)
80060	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS SR/YT-90)

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons